



## Universal Gauge

The Bowers Universal Gauge's ingenious modular format enables it to be quickly configured to suit almost any measuring challenge. Whether measuring internally or externally, the Universal's clever constant pressure device ensures accuracy and consistency of reading. The gauge's findings are displayed on its built in clear digital readout.

The unique modular construction of the Bowers Universal Gauge facilitates the fitting of a large variety of measuring contacts and adaptors, enabling countless measuring tasks to be completed with ease. Accessories for the measurement of threads, grooves, splines, gears, hole centres, and many others are available as standard, whilst special adaptations for more unusual applications can be quoted on request.

Bluetooth Available  
ask for details

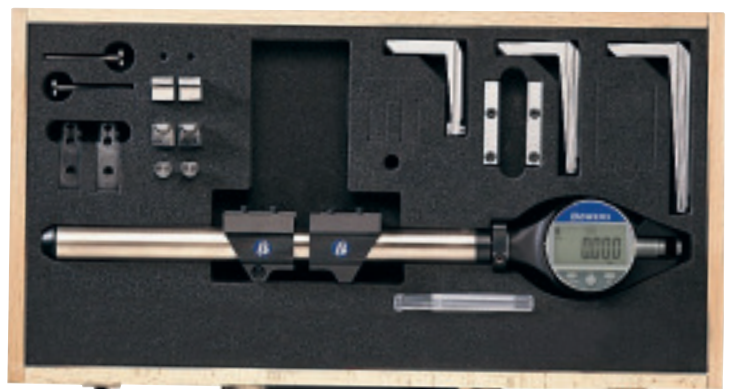
WiFi  
see p249 for wireless options

RS232



### Features

- Internal and external measurement
- Large measuring range possible 0-3000mm (0-118")
- Constant measuring force
- Supplied with digital readout
- Large range of accessories for standard measurement of threads, grooves, splines, diameters, lengths, shallow spigots and recess diameters etc
- Special anvil designs available P.O.A



TGUDEMO

### UNIVERSAL GAUGE

Code No	Description
TGUDEMO	Universal Gauge Full Set

## Universal Gauge Sets

### Universal Gauge (extension compatible version) standard features:

- Range 30-250mm internal / 0-215mm external 15mm anvil travel
- Constant measuring pressure
- Digital or mechanical readout
- 150mm and 500mm extensions available. Can be screwed together in multiples (up to maximum 3m recommended)
- Measuring table and supports available for conversion to bench gauge for the measurement of small components
- Covers approx 90% of all applications



ask for details



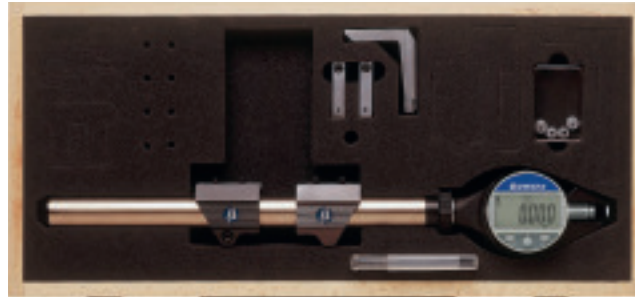
see p249 for wireless options



### SET CONTENTS - STANDARD VERSION

Code No	Description
TGUDEMO2	Set with box
TGU1000	Universal Gauge - supplied boxed Compatible with Extensions
TGUA001	Digital indicator with cowl
TGUA003	Clamping inserts (each)
TGUA005	Spherical contacts (each)
TGUA006	Measuring arms 50mm (pair)
TGUA010	Depth-stops (pair)

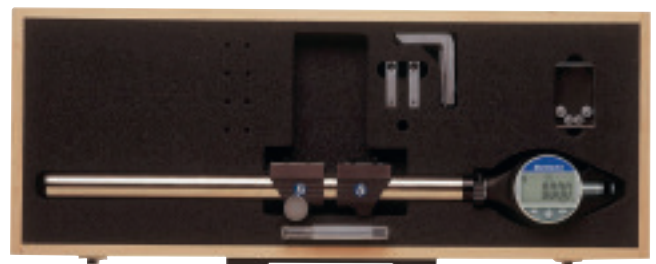
TGUDEMO2



### Universal Gauge (slide guideway version) standard features:

- Range 30-335mm internal / 0-300mm external 15mm anvil travel
- Slide guideway for rapid measuring contact alignment
- Constant measuring pressure
- Digital or mechanical readout
- Measuring table and supports available for conversion to bench gauge for the measurement of small components
- Covers approx 90% of all applications

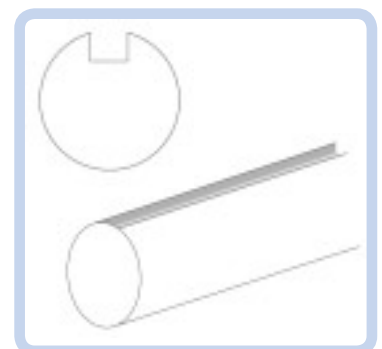
TGUGSET01



### SET CONTENTS - SLIDE GUIDEWAY VERSION

Code No	Description
TGUGSET01	Slide Guideway version-Set
TGU1000G	Universal Gauge - supplied boxed Not Compatible with Extensions
TGUA001	Digital indicator with cowl
TGUA003	Clamping inserts (each)
TGUA005	Spherical contacts (each)
TGUA006	Measuring arms 50mm (pair)
TGUA010	Depth-stops (pair)

Slide Guideway





## Universal Gauge and Accessories

### Standard Gauge

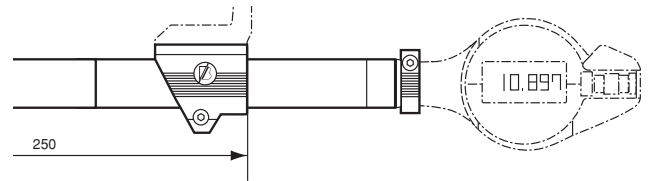
Code No	Range - Internal (mm)	Range - Internal (inch)	Range - External (mm)	Range - External (inch)
TGU1000	30-250	1.2-10.030	0-215	0.8-50

### Slide Guideway Version

Code No	Range - Internal (mm)	Range - Internal (inch)	Range - External (mm)	Range - External (inch)
TGU1000G	30-335	1.2-13.20	0-300	0-11.80

#### EXTENSIONS: (for standard gauge only)

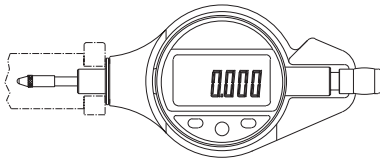
Dimn - A	Code No	Range - Internal (mm)	Range - Internal (inch)	Range - External (mm)	Range - External (inch)
150	TGUA033	30-400	1.2-15.00	0-365	0-14
500	TGUA032	30-750	1.2-29.00	0-715	0-28.0



Intermediate and additional lengths can be made up by using 150 or 500mm extensions

### Digital Indicator and Protective Shroud

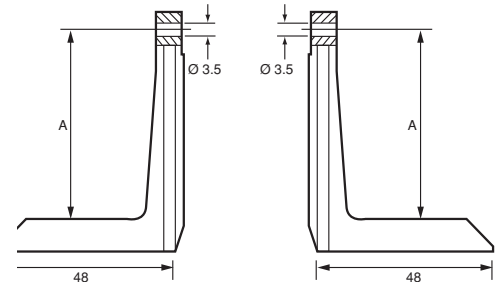
Code No  
TGUA001



### Measuring Arms

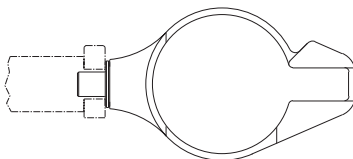
(reversible for inside/outside diameters)

Dimn - A	Code No
50	TGUA006
75	TGUA007
100	TGUA008



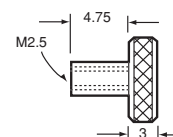
### Protective Shroud for Dial/Digital Indicator

Code No  
TGUA002

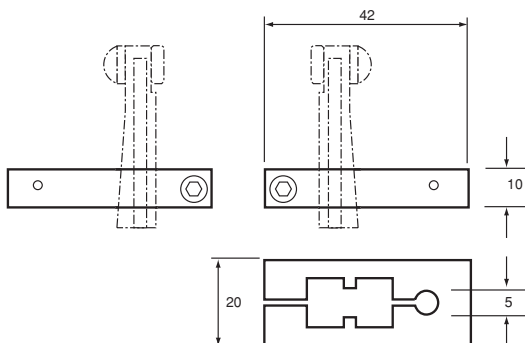


### Clamping Insert

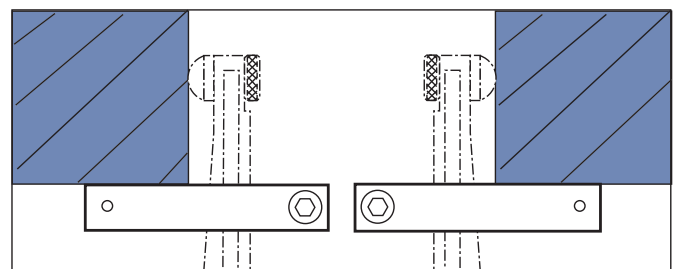
Code No  
TGUA003



### Adjustable Depth Stops for Measuring Arms



Code No  
TGUA010



### Spherical Tips

Code No  
TGUA005

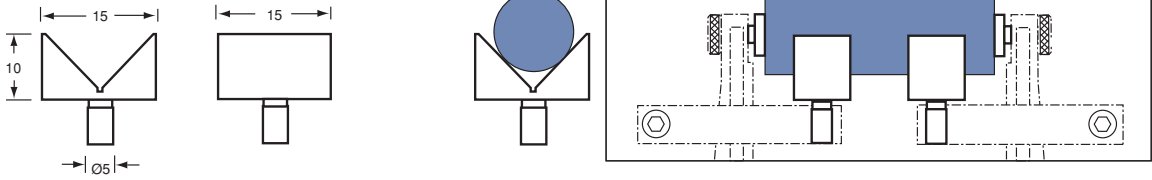
### Flat Tips

Code No  
TGUA004

## Universal Gauge

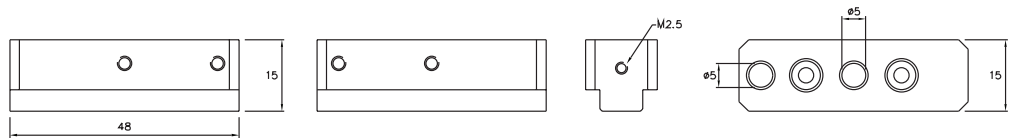
### Vee Support for Length Measurement

Code No  
TGUA022



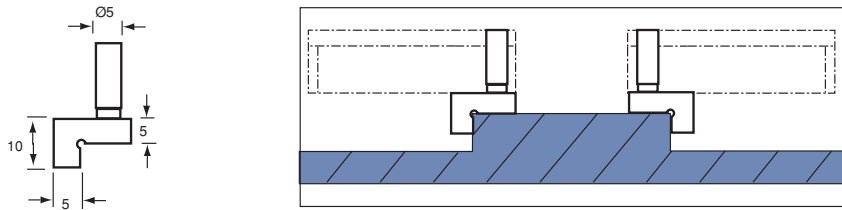
### Mounting Attachments for use with the following Anvils

Code No  
TGUA009



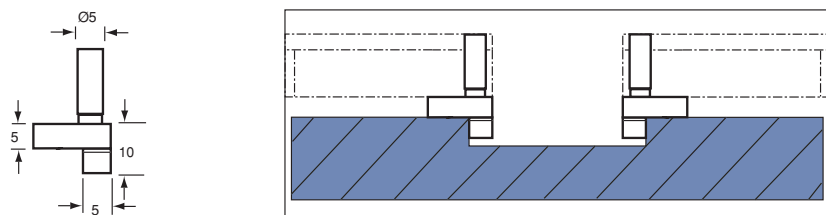
### Shoulder Anvils Flat Outside Spigot Diameter

Code No  
TGUA011

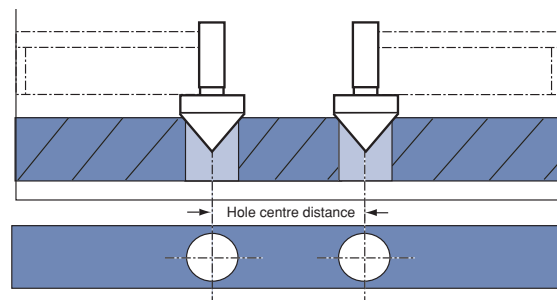
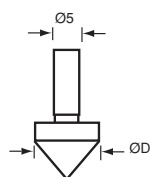


### Semi-Cylindrical Anvils for Inside Register Diameters

Code No  
TGUA012



### Cone Anvils for Measuring Hole Centre Distance



Code No	Dimn - D
TGUA019	13
TGUA020	25
TGUA021	50

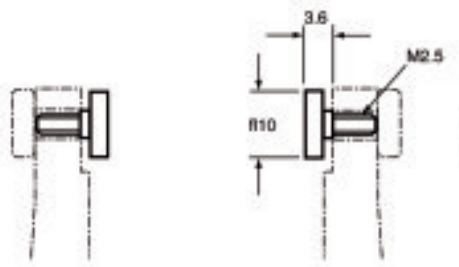


## Universal Gauge

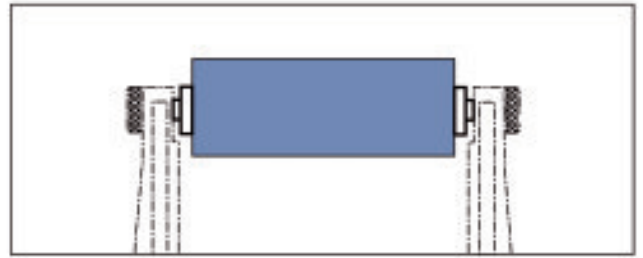
Although extremely comprehensive, the collection of Universal Gauge accessories cannot cover every measuring application. If your particular gauging need is not catered for within our standard range, specialised adaptors, contact points, etc can be quoted from a customer supplied component drawing.

### CONTACTS FOR USE WITH MEASURING ARMS

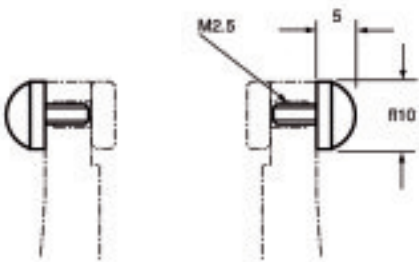
#### Flat Tips



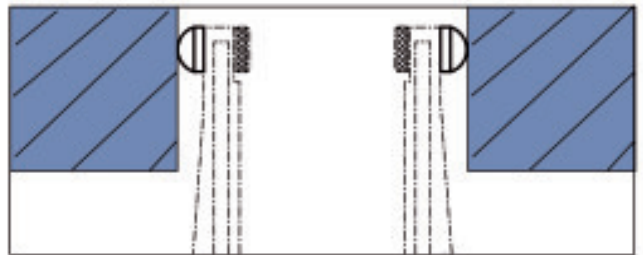
Code No  
TGUA004



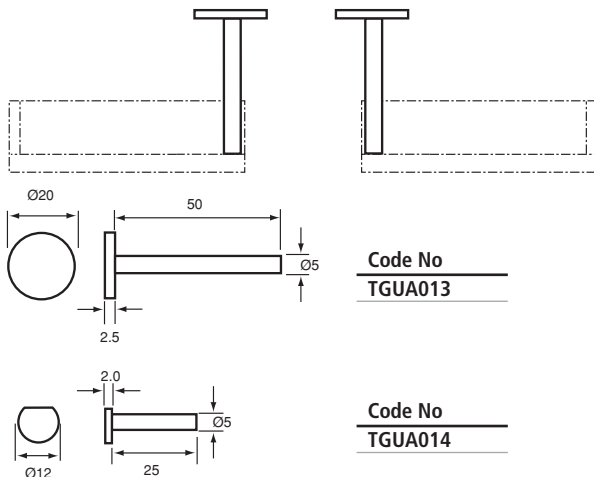
#### Spherical Tips



Code No  
TGUA005

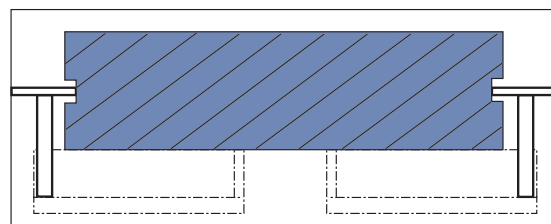
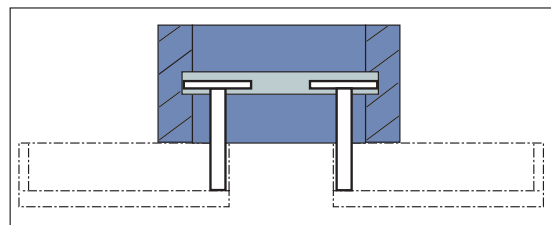


#### DISC Anvils for measuring Groove Diameter



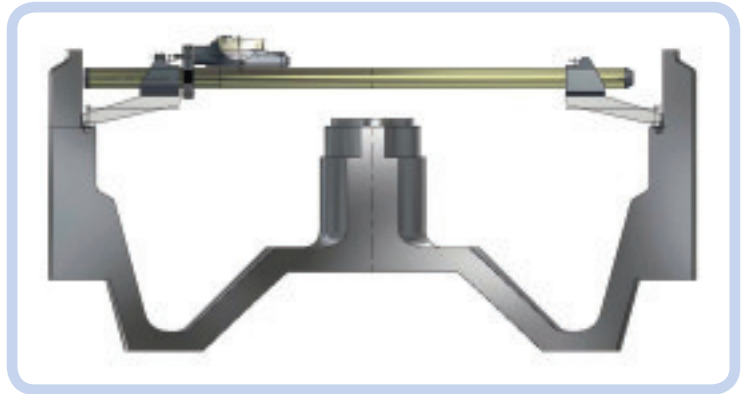
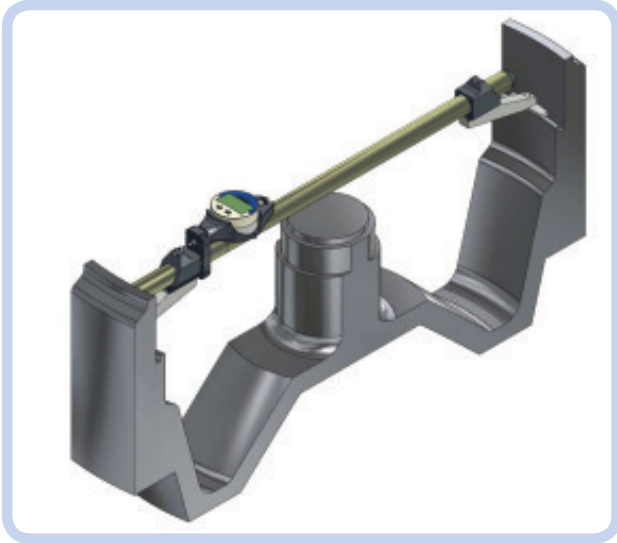
Code No  
TGUA013

Code No  
TGUA014

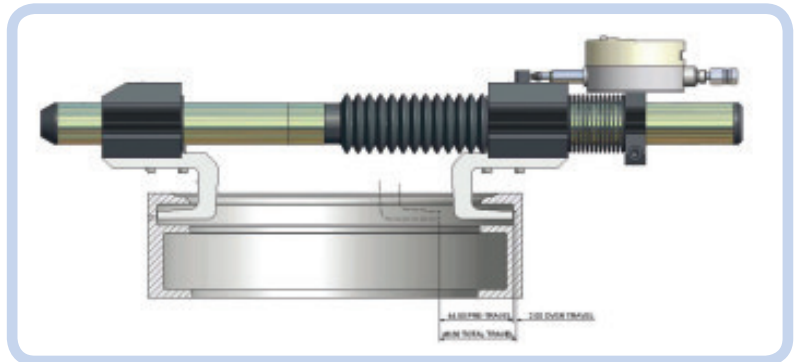
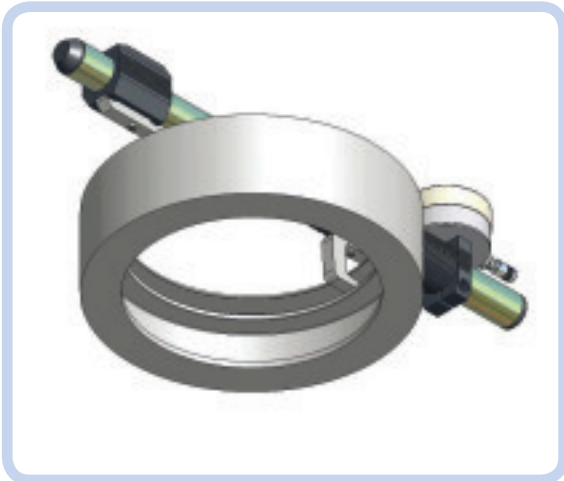


## Bowers Universal Gauge Specials

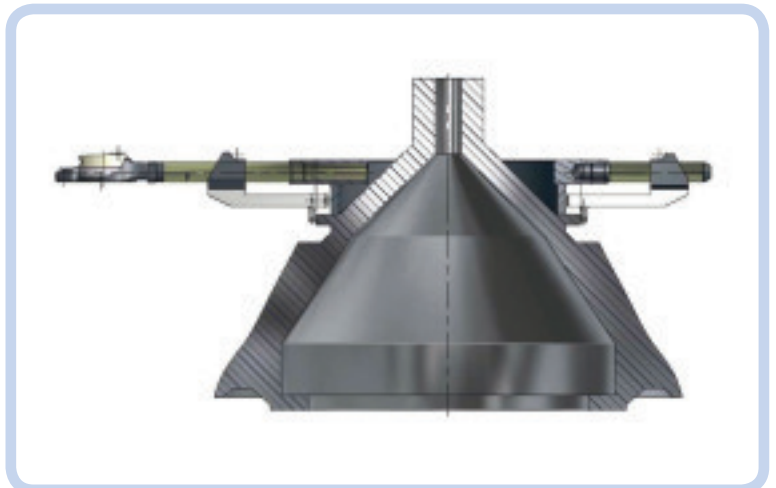
Universal Gauge incorporating on-board indicator and extra reach contact points.



Extended Travel Special Application Universal Gauge.



Special Universal Gauge measuring across large diameter component with central boss.





## Checkmaster Comparator

Available in two sizes, Checkmaster is the flexible gauging solution for short production runs. Simply setup your Universal Tooling set to suit your application (see opposite), fit your preferred indicator and zero against a master for fast accurate and incredibly repeatable results. Gauging force can be adjusted for softer materials and biased for either internal or external dimensions by a simple lever selection. This enables multi-dimension setups to be easily catered for.

### Need absolute results?

Using Bowers' standard digital indicator, the master size can be pre-set. Now the results are displayed as Absolute dimensions. Tolerances can be entered and an out of tolerance symbol will flash for even quicker reference.

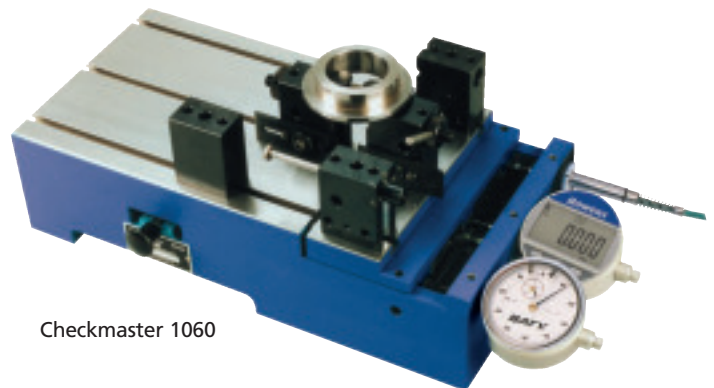
### Tooling:

The Universal Tooling Set includes 2 x universal tooling blocks, combination blade / radius anvil, Mushroom anvils and mounting bars to allow a variety of internal and external features to be measured.

Checkmasters can be supplied with or without indicators. If ordered 'Less Indicator' the Checkmaster will be supplied with a set of split bushes to suit any 8mm or 3/8" stem mount gauge with a suitable reach.



Checkmaster 1050



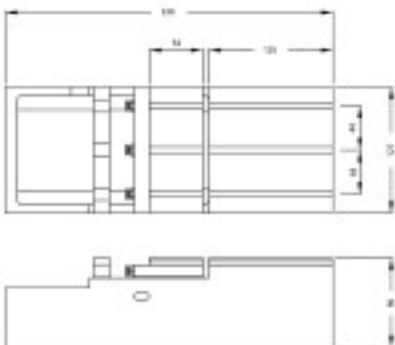
Checkmaster 1060

### Features

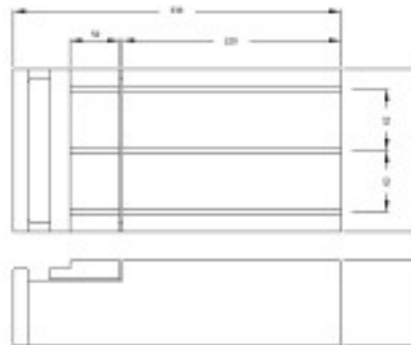
- Unique 3 gauge station and readout capability
- Remarkable versatility and repeatability
- Accepts most dial indicators, digital indicators (12.7mm travel) and Gauging Probes
- Excellent gauge repeatability and reproducibility (G.R. & R.) capability
- Exceptionally tough for shopfloor on-line inspection
- Measuring force, with adjustable setting
- Multi functional
- Ideal for SPC and 100% inspection
- Left or right hand operation

## Checkmaster Dimensions

**Checkmaster 1050**  
Code No: 1050



**Checkmaster 1060**  
Code No: 1060



## Checkmaster Comparator

### Need SPC, printed reports data storage?

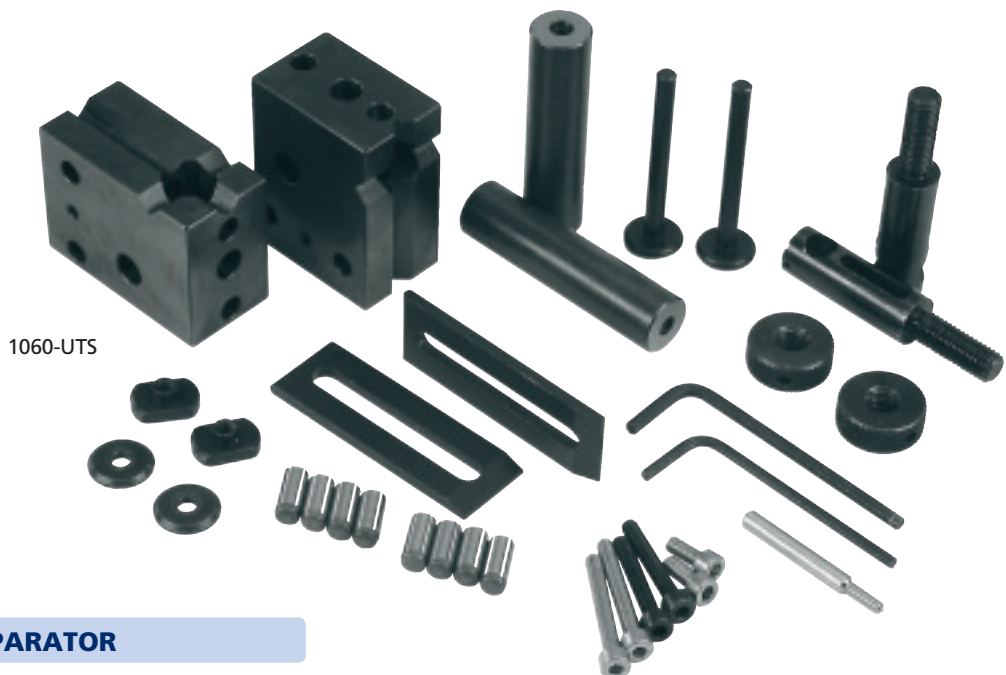
Replacing the conventional indicator with a transducer linked to our Sylvac D300S digital readout will allow you to setup and store multiple parts each with pre-toleranced dimensions. Just setup the correct tooling situation, select the part / job number required from the D300S memory and you are ready to go.

SPC Data from previous measurements of the same part type can be viewed on the large colour screen and even printed direct from the D300S or transferred to a PC.

Full maths functionality included: take dynamic measurements such as roundness / concentricity or solve more complex applications by using multiple transducers.



Checkmaster 1050



1060-UTS

### CHECKMASTER COMPARATOR

Code No	Description
1060-UTS	Universal Tooling Set for 1050 or 1060 Checkmaster

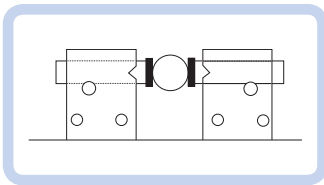




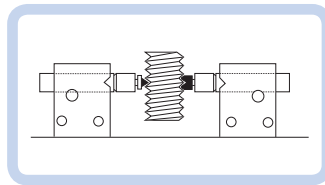
## Checkmaster Tooling Applications

### Features

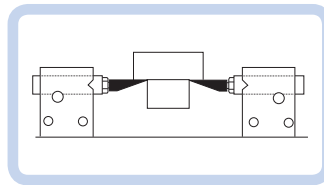
- Diameters, internal and external
- Undercuts, O ring grooves, ball tracks internal and external
- Gear and spline pitch diameter internal and external
- Rolling gear test, gear to gear or gear to master
- Gear pitch diameter to shaft bore run out
- Holes centre to centre
- Concentricity bore to O.D.
- Step height, lengths, depths



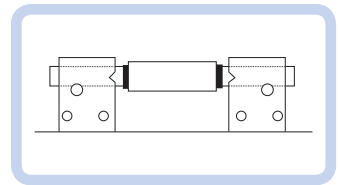
Outside Diameter



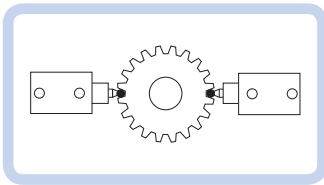
Thread Features



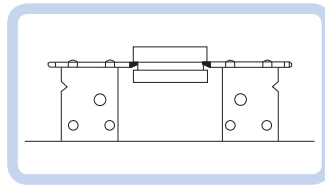
Undercut Depth



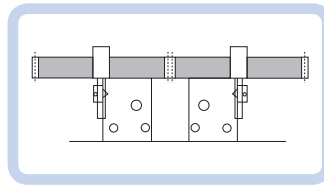
Length



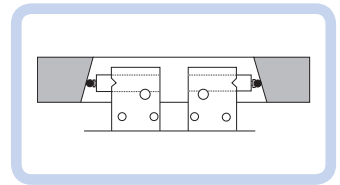
External Spline / Gear PCD



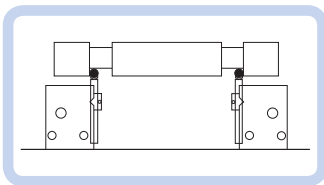
External Diameter



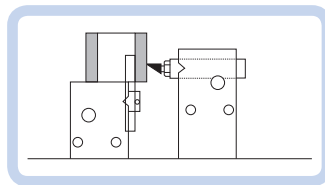
Rolling Gear Test



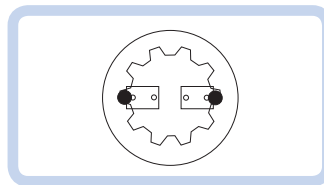
Internal Taper



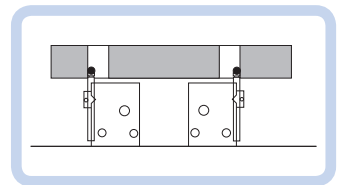
Bearing Face Distance



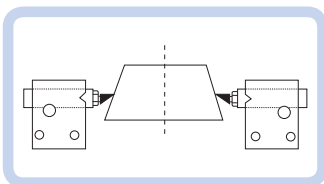
Concentricity / Wall Thickness



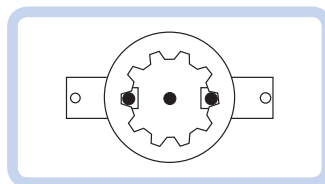
Internal Spline (Large Diameter)



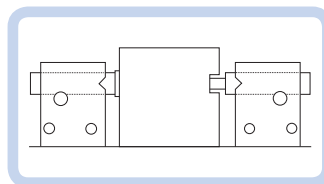
Hole / Slot Position



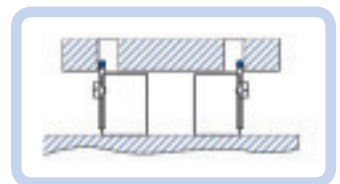
External Taper



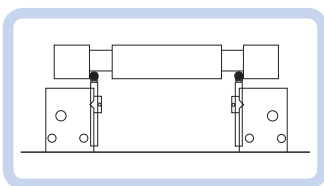
Internal Spline (Small Diameter)



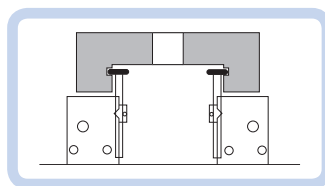
Slot Depth



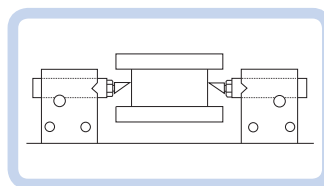
Hole Centres



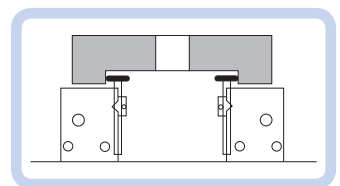
Web Thickness



Internal Recess Diameter



Recess Diameter



Bore Diameter

## INTEX Comparator Beam Gauge

Developed to measure both internal and external diameters and lengths, the Intex gauge's aluminium extrusion beam gives it a rigid yet lightweight quality, making it ideal for shop-floor environments. The simple release of a locking thumbscrew enables the gauge's measuring direction to be changed quickly and easily.

### Features

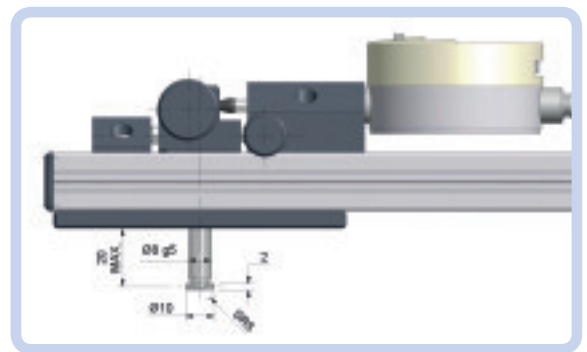
- Lightweight and rigid
- Measuring ranges: 200-400mm, 400-600mm, 600-800mm, 800-1000mm
- Sizes over 1000mm available on request
- Internal and external measurement
- 2mm travel on moving contacts
- Adjustable fixed contacts with up to 250mm adjustment range
- Digital or analogue indicator available
- Hardened steel wear pads locate gauge onto component aiding repeatability and prolonging service life
- Setting master required to set the instrument



ask for details



see p249 for wireless options



INTEXA01

### INTEX BEAM GAUGE - Without Indicator

Code No	Range (mm)	Range (inch)
INTEX01	200-400	8-16
INTEX02	400-600	16-24
INTEX03	600-800	24-32
INTEX04	800-1000	32-40

### INTEX BEAM GAUGE - With Indicator

Code No	Range (mm)	Range (inch)
INTEX01IND	200-400	8-16
INTEX02IND	400-600	16-24
INTEX03IND	600-800	24-32
INTEX04IND	800-1000	32-40

Code No	Description
INTEXA01	Standard contacts - 10 diameter (pair)



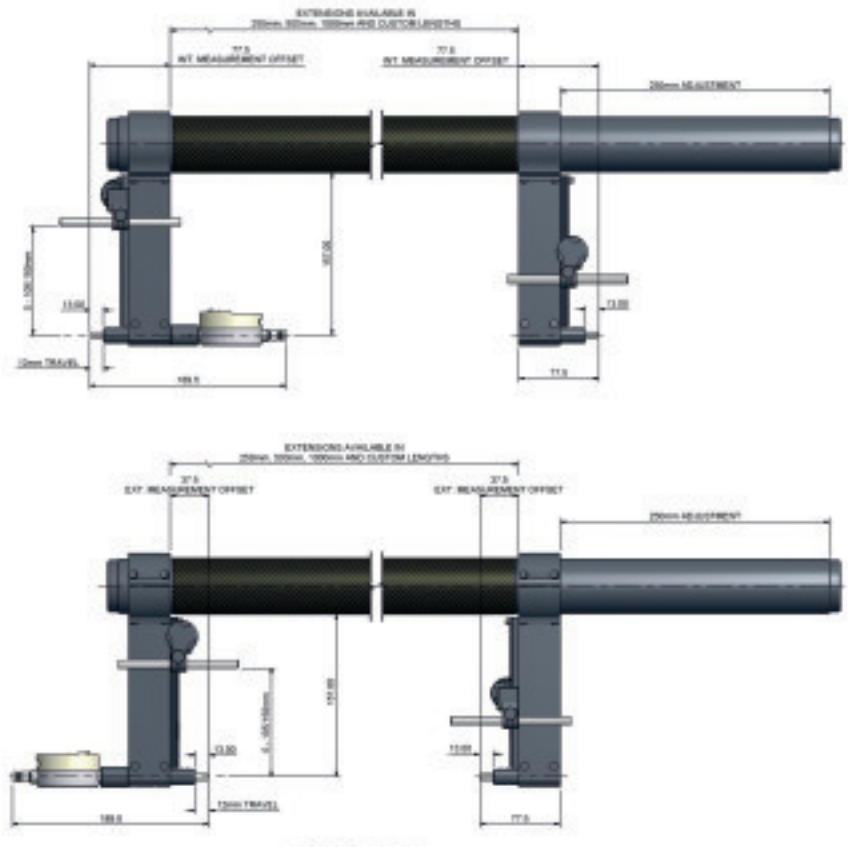
## Carbon Fibre Comparator Beam Gauge

Designed to measure both internal and external diameters and lengths, the high modulus carbon fibre beam is stiff, lightweight and has an extremely low co-efficient of thermal expansion (CTE). Suitable for measuring high accuracy diameters and lengths up to 4000mm+.



### Features

- Extremely lightweight even at 4m span
- Extremely low co-efficient of thermal expansion
- Measuring capacity of standard set:  
External: 0 > 1930mm  
Internal: 150 > 2150mm
- Modular design of beam allows infinite level of adjustment within the above ranges
- Additional 1000mm extensions add quickly and cost effectively to the gauge capacity
- Internal and external measurement  
0 > 105 (150)mm measurement depth from component face
- 12mm anvil travel
- Digital or mechanical readout
- Tooling included for presetting gauge on Trimos horizontal machines



### Sets include:

- Pair gauge legs
- Fixed leg tube
- Moving leg tube
- 250mm CF ext. tube
- 500mm CF ext. tube
- 1000mm CF ext. tube
- Tooling to suit Trimos setting machine and storage/travel case

