

## User benefits

### Minimize cost per measurement

- Increase throughput
  - Minimized cycle time → less amount of equipment → less labour cost
  - Measure under industrial condition close to fabrication
  - Minimized setup and calibration time (assisted setup)
  - Maximized reliability and accuracy (less re- testing and comparison testing)
  - Choose specific machine fitting your needs



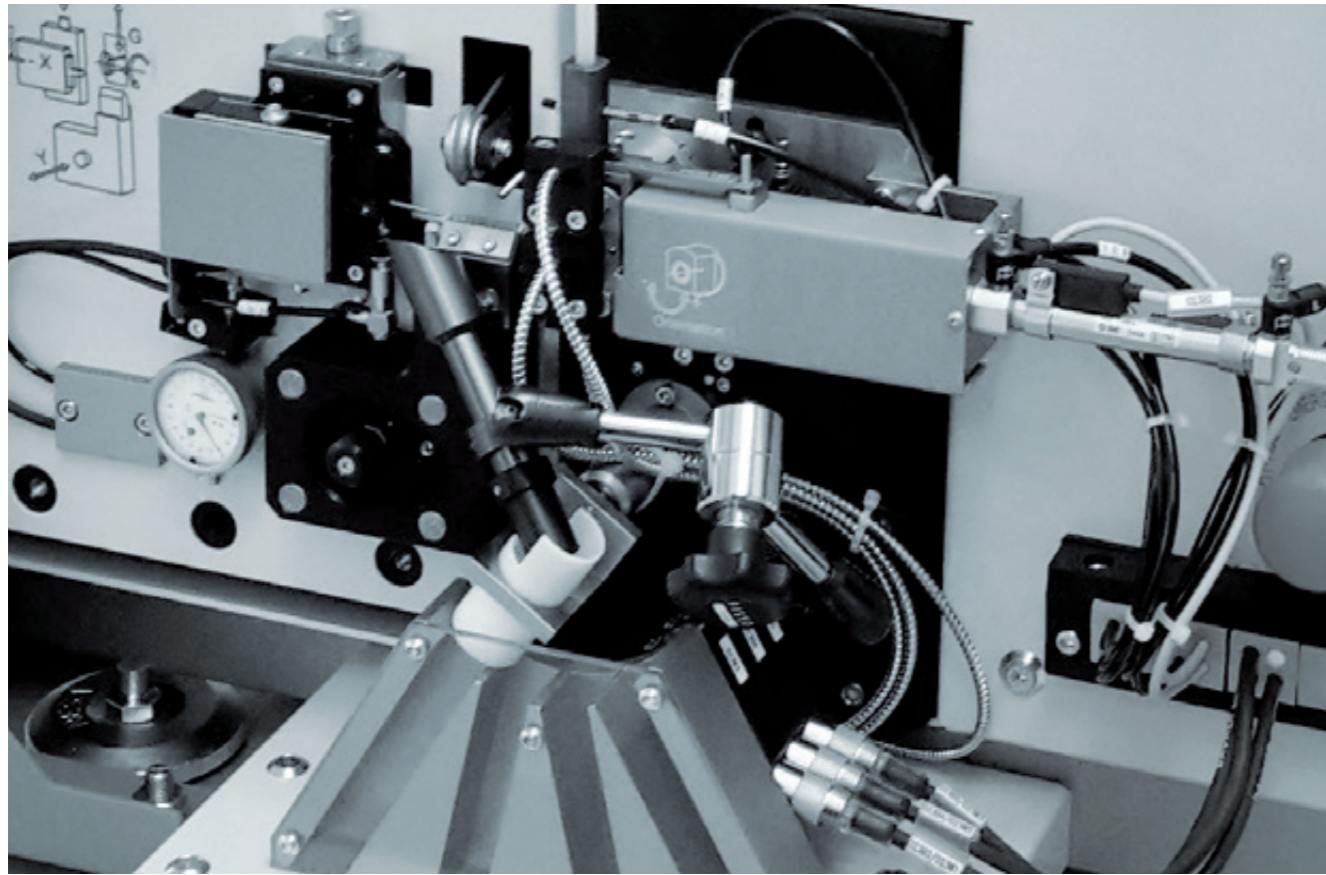
### Increase value of measurement

- Improve reliability and accuracy of measurement
  - Measure close to function (Measure inside the bore at defined depth of termination)
  - Document your measuring results automatically and easily
  - Make sharp margins between categories
  - Use the market reference measuring machine



### Avoid hidden costs because of ID angle problems

- Measure the angle of bore in order to have better image of the performance of your finished product
  - **The angle of the ID together with the concentricity has a significant impact on the performance of a FO ferrule**
- Analyse your injection mould tool before producing bad blanks
- Detect blanks- problems before machining them costly
- Detect ID angle problems on your Ferrule before terminating the connector costly



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Subject to modifications



THE CUTTING EDGE OF A MICRON

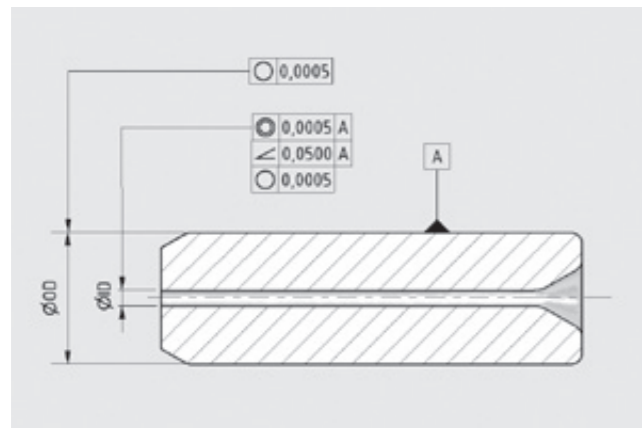
# MicroTest SGL

## Concentricity | Roundness | Bore angle testing

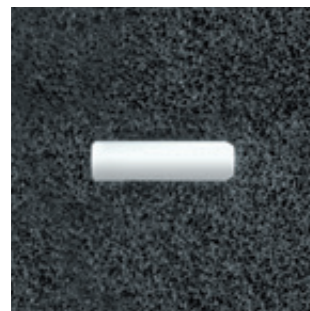
The **MicroTest SGL** series allows a fast, accurate and automatic qualification of small cylindrical parts with relevant concentric geometries. A successful story in ferrule concentricity testing continues with the newest Microcut® development.



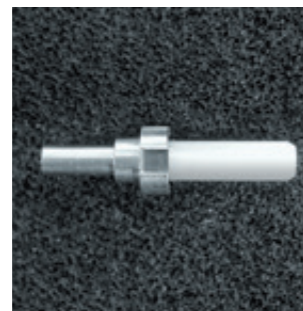
## Typical workpieces



Ferrules for fiber-optic connectors



automatic handling

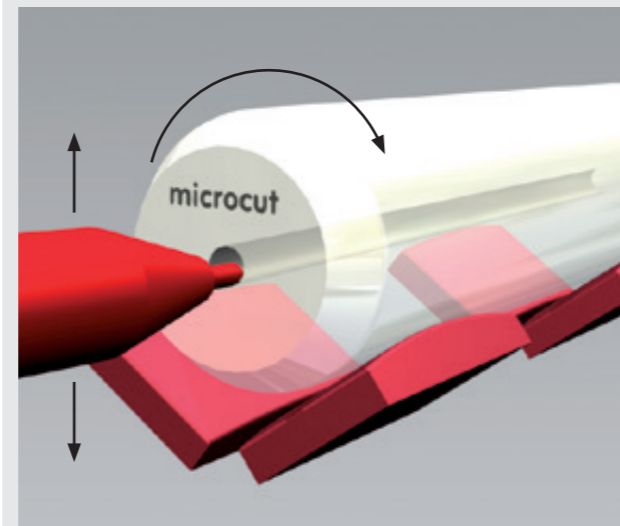


manual handling

## System advantages

- Shortest cycle time
  - During measurement the handling system prepares the next workpiece
- Various measurement options
  - Concentricity measurement
  - Angle measurement
  - Multiple measurements of one part
  - Programmable measuring depth
- High precision
  - High precision measuring head
  - Vibration insulation
- High repeatability
  - High precision mechanics guarantees the repeatability of the setup
- High reproducibility
  - Automatic Zero point search in X-Axis
  - Semiautomatic setup procedures / step by step instructions
- Diamond workpiece support
  - No jumping effect of workpiece
- Data collecting to USB stick
  - Direct import to MS Excel sheet
- Custom specific machines
  - Manual or automated workpiece feeding and sorting
  - Automatic quality selection groups 1-4
- Customized solutions
  - All in house engineering support for customized solutions
- Easy operating
  - Step by step guided setup procedure and zero position search routines

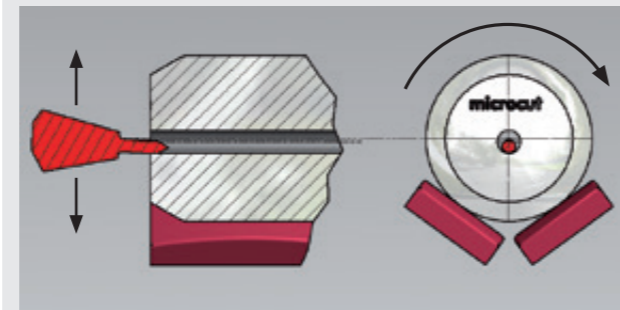
## System description / measuring principle



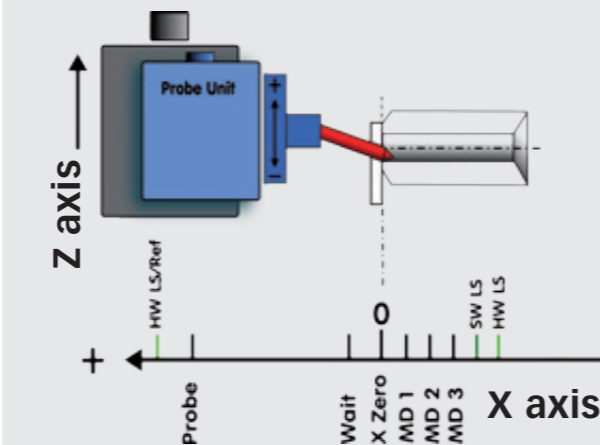
Tactile concentricity / runout, roundness and bore-angle testing equipment

Measuring probe enters mechanically into the concentric bore of the work piece to defined depth (e.g. 0.1 mm)

The work piece rotates around the axis of OD



The measuring probe follows the motion of the bore, caused by the eccentricity of the bore



- Programmable measuring depth
- Auto zero position procedure

## Automation system



The workpieces are filled into a drum feeder and led to the handling station



After measuring the work pieces are sorted into 4 quality classes

## Technical specifications

### Concentricity measurement

Displayed resolution	0.1 $\mu$ m
Repeatability	0.1 $\mu$ m
Measuring cycle time	2.0 sec
Total cycle time automatic	3.5 sec

### Bore angle measurement

Displayed resolution	0.001°
Measuring cycle time	3.4 sec
Total cycle time automatic	4.9 sec

### Work piece specifications

FO Ferrule kit	SC kit (OD 2.5 mm)
	MU/LC kit (OD 1.25 mm)
Range of OD*	1 – 2.6 mm
Range of ID*	0.11 – 2 mm
Range of length*	6 – 11.5 mm

### General properties

Classification system	4 quality ranges which are programmable
Data collecting interface	USB Stick / Ethernet
Parameter back up	USB Stick / Ethernet
Conformity	CE
Electrical requirements	100-240 VAC, 50/60 Hz
Air requirements	5.5 bar, dried filtered
Dimensions L x W x H	650 x 729 x 755 mm
Weight	Max 120 kg

O = Optional

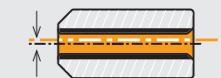
\* Customized sizes are available on request

☑ = optional

## Tested parameters: position and form

Concentricity; runout and inclination (Angle), have a major impact of the insertion loss in fiber optic connection.

Runout / concentricity of bore (ID) to Outer Diameter (OD)



Runout

The MicroTest measures the runout which is including concentricity and partial roundness of ID and OD



Concentricity

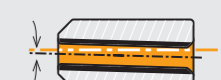
The concentricity reflects only the relation in between the axis of center of ID and OD. Eccentricity is 1/2 of concentricity

Angle of bore axis to outer diameter axis



Angle / Inclination

The angle of the ID together with the concentricity has a significant impact on the performance of a FO ferrule



The angle of bore defines the shift of lateral misalignment (concentricity) when polishing down the face of Ferrule

Roundness of OD (Outer Diameter) and ID (Inner Diameter)



Roundness

Typically the roundness of ID has an influence of the performance of the connector.

Typical OD form

Typical ID form

