

# GAP JET Automatic Measuring Unit (patent pending)

## New Type of High Precision Inner Diameter Measuring Unit



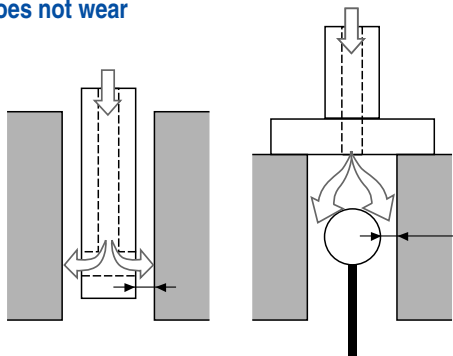
### Sample of suitable applications

Injector: Inner diameter measuring, inner diameter profile measuring  
 Fluid bearing: Inner diameter measuring, inner diameter profile measuring  
 Ultra small diameter bearings: Inner diameters of 1 mm

### Features

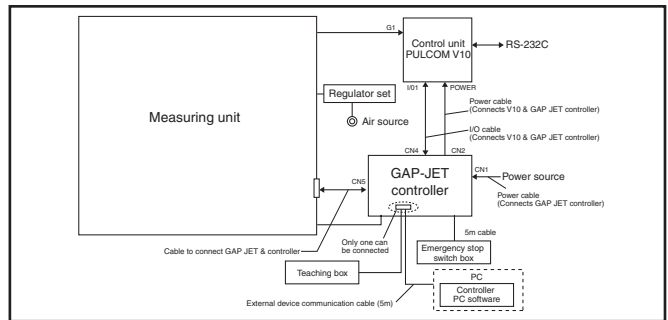
- High precision measuring of inner diameters.  
Repeatability is  $\pm 0.1 \mu\text{m}$  ( $\pm 2\sigma$ )
- Inner diameters between  $\phi 1$  and  $\phi 5$  mm can be measured.
- Maximum of 14 measuring positions of cross sections can be registered
- Workpieces only 0.5 mm thick can be measured.
- Sagging at inlet/outlet displayed as graph.
- No wear like air jet since the unit is non-contact.

Ball and workpiece do not touch during measuring because of centripetal effect.  
 Workpiece is not scratched/measuring ball does not wear

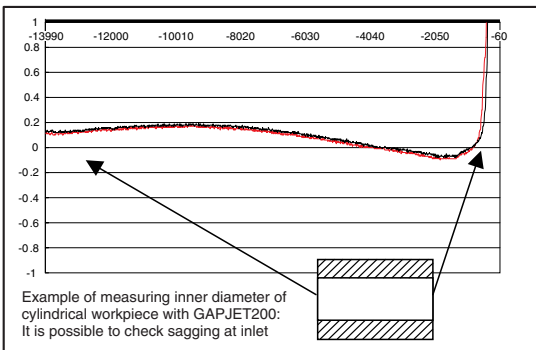


**Conventional air jet**  
**GAP JET**  
 Detects gap between hole and workpiece with high sensitivity using change in pressure of flowing air.

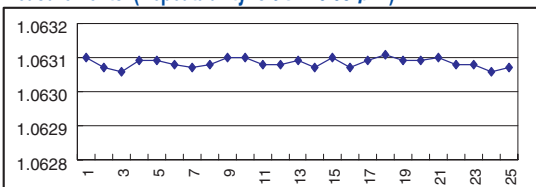
### Configuration Diagram



### GAPJET200 model can check sagging at inlet/outlet.



Actual sample data for precise measuring: 1 mm inner diameter 25 measurements. (Repeatability is  $6\sigma = 0.08 \mu\text{m}$ )



### GAP-JET100 and 200 Specification Comparison

Model	GAP - JET 100	GAP - JET 200
Product code	0908040	0908050
Repeatability (guaranteed performance)	0.1 $\mu\text{m}/2\sigma$ (25 times)	
Workpiece height range	6 - 20mm	
Number of measured sections	Maximum 14 sections	
Ball positioning accuracy (movement in one direction)	+/-0.02 mm	+/-0.01 mm
Possible ball movement speed setting	1 - 125 mm/sec	0.1 - 185 mm/sec
Cycle time	3 sec./1 section (excluding when workpiece is mounted and removed, and when ball is moving)	
Profile measurement	No	Yes (Scan speed: 0.1 mm/sec)
Measuring position setting method	Teaching pendent	Teaching software (Installed on PC provided by customer)
Display	Value for each measured section	Section measurement mode: value for each measured section Profile measurement mode: profile graph
Measured diameter	1 diameter measured between 1 and 5 mm (no notches in measured surface)	
Measuring range	10 $\mu\text{m}$	
Resolution	0.01 $\mu\text{m}$	
Power source	85 - 250 V, 70 VA	
Air source	0.6 - 0.7 MPa	
Usage temperature range	0 - 40°C	
Humidity range	90% or less (no condensation)	

### Options: Compatible with setup switching

Product code	Name	Remarks
0909080	Workpiece specific design cost	Required at time of order (workpiece diagram must be provided)
0909060	Mastering	Cost of one mastering
0909070	Ball assembly	Information (measured diameter) required, spare parts
4295153	Height measuring jig	Required for each type of workpiece
2075627	Teaching pendent	Required for GAPJET100
4204551	Teaching software	Required for GAPJET200