# PMS Preform Measuring System

The PMS Preform Measuring System is an automatic instrument for measuring the general dimension of preforms. The instrument is designed according to the principle of optical multi-lens refraction and segmented imaging, and multi-segment parallel light is used to illuminate the preform to obtain the entire contour image. The contour was extracted by the bi-telecentric lens and parallel light source, which ensures that the contour is not deformed and the measurement accuracy is ensured. At the meantime, by rotating the preform, and according to the variation of refraction and reflection when the light passes through the preform, the thickness variation of the preform is calculated based on the principle of light propagation. Auto positioning and measuring the dimensions of the preform, not only the regular dimensions like neck diameter, thread diameter and the outer diameter of locking ring, etc., but also the flashing, concentricity and overall height, etc., the instrument can also recognize and record the cavity number automatically.
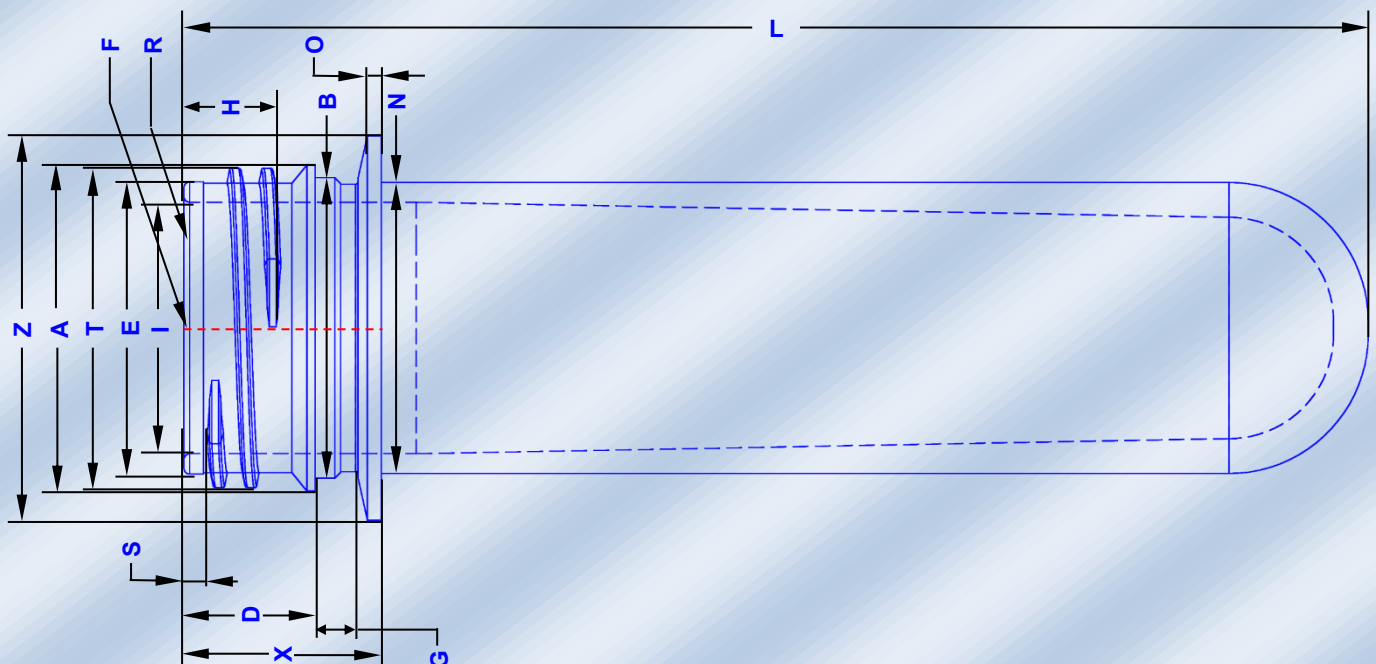
|					
"A" Tamper Band Dia.	"B" PP Band Diameter	"C" Thread Projection	"D" Distance Tamper Band	"E" Neck Dia.	"F" Flashing
"G" PP Band Clearance	"H" Distance Thread End	"I" Neck Inner Dia.	"L" Overall height	"O" OD Band Thickness	"R" Seal Radius
"S" Distance Thread Start	"T" Thread Dia.	"U" WT Difference*1	"V" Thread Tip Width	"W" Concentricity	"X" Finish Height
	"Y" Thread Angle	"Z" OD Band Dia.	Cavity Nº. recognition*2	"N" Preform body outer Dia.	

Characteristics:

- The instrument is designed according to the principle of optical multi-lens refraction and segmented imaging, and multi-segment parallel light is used to illuminate the preform to obtain the entire contour image
- Optimal light source design, auto filter the shrinkage and grain effects caused by the injection molding of the preform, and recognize the characters of cavity number of the preform accurately.
- Custom-made finish spacers according to the finish sizes, easy to replace and ensure the measurement accuracy
- Preform rotation by servo motor
- Positioning by the inherent characteristic points of the preforms, so that to standardize the measurements of all the preforms
- Modular design, which is easier in installation, more convenient to use and higher accuracy and stability
- System adopts measurement modular management function, and improves the measurement accuracy to 1/3~1/5 pixels (0.005mm) through the sub-pixel image processing technology of planting technology
- Software has different built-in standard finish measurement modules, the system is able to select different measurement modules intelligently by auto identifying the preform category
- The system has character learning and recognition functions. Based on the character pre-learning, the cavity number on the preform can be quickly identified and recorded in the data sheet
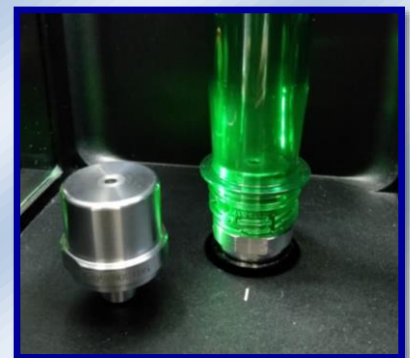
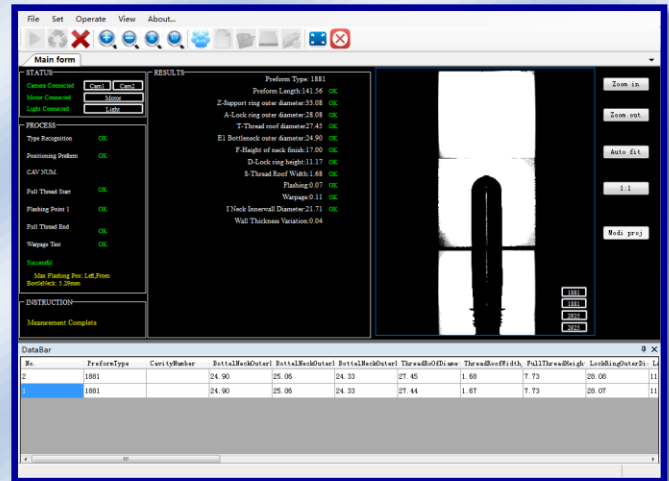**Custom-made finish spacer**
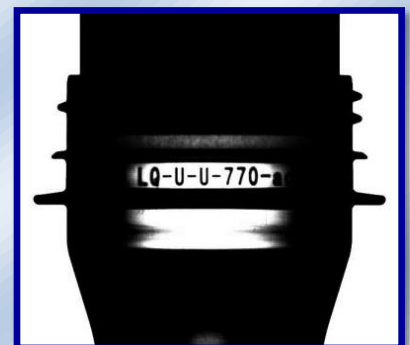
Auto cavity no. recognition
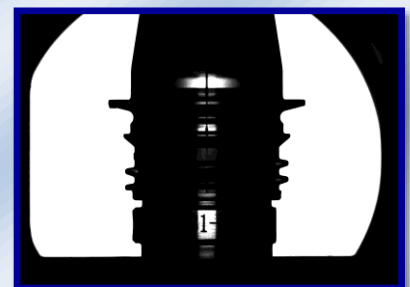
Parting line measurement

*1: Only available for transparent preforms with wall thickness greater than 2 mm, like PET, PE, etc. Measurement of wall thickness difference for opaque and multi-layer materials is not available at this moment

*2: Cavity Nº. recognition must provide samples for study.

Technical specifications:

- Sample dia.: ≤ Φ40mm

- Sample height range: 0 - 30mm, 60 - 180mm (other range by order)

- Measure scope: General dimension of preform (including wall thickness difference, inner diameter and thread angle)

- Photographing Chip: 10 Million Pixels, Black and White Coms

- Lens: Bi-Telecentric Lens

- Display: 12" Touch Screen

- Lighting: Telecentric Parallel Light

- Measuring Accuracy: 0.005mm

- Repeatability accuracy: ±0.01mm (Neck inner dia. ±0.02mm, Wall Thickness difference ±0.03mm, Flash ±0.025mm, Overall Height ±0.05mm, Concentricity ±0.05mm, Thread angle ±1°)

- Operation time: 35 - 50 s

- Storage Capacity and Output Format: 64G, Csv

- Interface Type: USB 2.0/3.0, Gigabit Network

- Operation System: Windows

- Languages: English / Chinese

- Power Supply: AC 110V / 220V   50Hz/60Hz

- Working Ambient Temperature: 10 - 36°C

- Working Ambient Humidity: 20 - 60% Rh, No Condensation

- Dimension: 760 (L) x 280 (W) x 435 (H) mm

Measuring screen

Optional：

- PBMS Preform and Bottle Measuring System
- Custom finish spacer