WTS Real-time Thickness Measurement System

for

Plastic Bottles and Containers

GP Resources, LLC, is proud to introduce its new on-line wall thickness measurement system for plastic bottles and containers, the WTS (Wall Thickness System). The WTS is installed on a conveyor close to exit of the blow molding machine and it automatically measures the thickness of each produced container in multiple locations by cavity. The WTS system enables controlling the blow molding machine trends in real time since the thickness is displayed instantly by cavity as the container is being blown and measured. In addition to thickness analysis with its built-in charts the WTS system can also be set to automatically reject bottles that do not meet specified minimum thickness requirements.

Highlights

- **100% thickness measurement without added labor**
- **For wide range of container sizes, shapes, colors and materials**
- **Measures each wall independently**
- **Non-contact optical method**
- **Adjustable measurement spot sizes and locations**
- **Modular design**
- **All-inclusive construction with small footprint**
- **Integrated touch screen user interface, air blast blow off and stack light**
- **Automatic data collection, storage and reporting**

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WTS System

The WTS System is a real-time wall thickness measuring system designed for plastic bottles and containers. The system is installed on an existing conveyor downstream of a blow molding machine for 100% product inspection. The WTS reads thicknesses of each container in desired locations and stores the results in database. The results are displayed instantly on charts providing immediate feedback information for machine operator to quickly adjust and optimize blow molder settings after changeovers and during daily production. The WTS can also be set to automatically reject containers that exceed specified thickness limits with an automatic air blast blow-off.

Applications

- Minimum container size: 1.0 x 1.0 x 1.5" (25 x 25 x 38 mm) (l x w x h)
- Maximum container size: Standard Unit:: 8.5 x 8.5 x 10" (216 x 216 x 254 mm) (l x w x h)
- Container shape: symmetrical, non-symmetrical
- Materials run: PET, PC, PP, PVC and clear HDPE
- Container transparency: transparent, semi-transparent
- Colors run: Clear, Green, Blue, Amber, other – not white
- Thickness range: .002 – 0.160” (0.05 – 4 mm)

Operation

The WTS system can be programmed by plant personnel for virtually unlimited number of different container types. The pre-set “recipe” for the desired container type is selected from the list, the probes are positioned and the system is ready for production. The stored recipes include specific parameters for thickness alarm/reject limits, measurement location, mode for linear test area and probe positioning. The software enables targeting of critical areas in flat-walled and non-symmetric containers. The machine operator may also select active blow mold cavities and package type for each production run separately.

The measurement results are instantly compared to pre-set limits and when needed, the machine operator is alerted by the stack light and the bad container can be rejected by an air blast blow-off. The blow-off can also be activated manually to collect product samples for Quality Control and other purposes.

All the pertinent measurement data is stored in the system’s SQL database. Measurement date and time, cavity number, probe number, minimum, maximum and average thicknesses, rejection status, conveyor speed, etc. for each measurement location in every container are recorded and stored. The data is used for instant real-time and run charting on WTS’ integrated touch screen monitor. The measurement data is also available for other reporting purposes whenever required at a later stage.

Facilities with multiple blow molding lines can benefit from the WTS system that features a master unit that shares the PC, touch screen, application software, SQL Server, etc. between multiple production lines. Each WTS station is equipped with casters that allow easy mobility between production lines.

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