

# Line Control



## ABC-D™

### Digital Advanced Bubble Control

The ABC-D system is designed to control the production of the lay-flat in *Blown Film Extrusion*. It has fully automatic control over the IBC (Internal Bubble Cooling) blowers and the balancing valve along with the calibrator cage size thus automatically achieving the desired lay-flat width.

The ABC-D system allows continuous changes of any product parameter and/or line operation during production while maintaining superior accuracy of the bubble size.

The ABC-D system controls the following:

- Bubble size and lay-flat width
- IBC blowers
- Calibrator cage motor
- Balancing valve
- Bubble gap

The screenshot displays a control interface with several panels:

- ABC Control:** Operation Mode (Manual, Auto, Continue), Control Stage (I, II, III), and Sensors (Radius 1-4, Cage 5-6, Gap 7-8).
- IBC Blowers:** Blowers Ratio (2.000), Correction Range (1.000), Control Ratio (1.000), Actual Ratio (1.000), Intake Speed (25.0%), Exhaust Speed (38.4%).
- Balancing Valve:** Control Value (5.000), Valve Position (Open 44.9%, Close), Cage Factor (750z), Set Radius (382MM), Actual Radius (381MM), and a table with TO, CR, TC, FL, WM.
- General Data:** Tower Height (11.00m), Coll. Frame Height (3.00m), Feedback Distance (40.00m), Width Error Alarm (2mm), Line Speed (13.5M/min).
- Web:** Width (1200MM), Gap (1MM), Actual (1201MM), Calibrate (0MM).

#### Features:

- Digital reading and control for superior accuracy and zero calibration.
- Eight digital ultrasonic sensors for measuring the bubble size and cage position.
- Easy installation, wiring and tuning.
- Unique electric circuit for fast and accurate digital measurements.
- Air balancing valve operated by servo.
- Calibrator cage position control (cage diameter).
- Bubble/Cage pressure control (bubble to cage gap).
- Atmospheric compensation to maintain accurate and uniform lay-flat width over time.
- Modeling control technique – ultra fast and stable width changes.
- Automatic width calibration by applying communication with the web-guide system (optional).
- Standard industrial PLC control with color touch-screen HMI.

