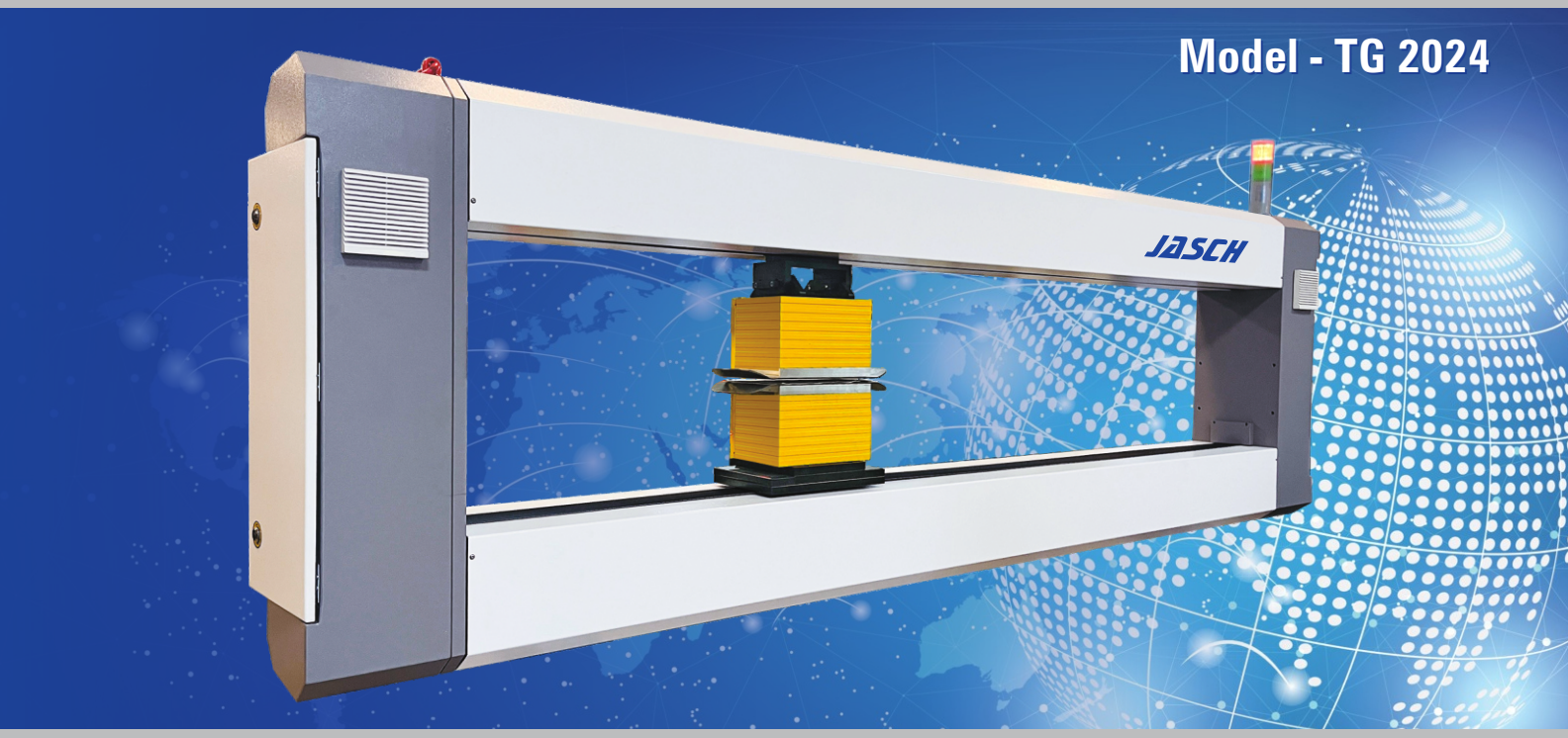
Online Thickness Gauging & Control System

26 YEAR OF EXCELLENCE



We offer online measurement and control systems for paper, metal strip/foil & coatings, plastic film & sheet and extrusion coating lines. We are a leading supplier with more than 2000 installations worldwide and continue to extend that lead by delivering robust service and support and above all cost effective solutions.

For plastic industries, our Thickness Gauges are widely used to measure and control the Basis Weight and thickness including automatic control in both machine and cross direction profile. We offer industry standard control system for automatic profile control on thermal dies from all manufacturers.

APPLICATIONS:

- BOPP / CPP / Polyester Film lines
- RAFFIA Tape Extrusion Plants
- PVC and Rubber Calendars
- Extrusion Lamination and Coating Plants
- Textiles and Non-Woven Industry
- Float Glass Industry
- HDHMR / MDF Board Industry

BENEFITS:

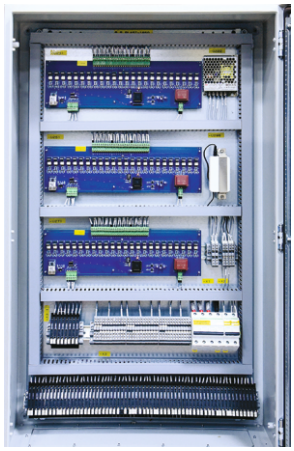
- Consistent Products
- Reduced Scrap
- Minimum Tolerance Level
- Savings in raw material
- Continuous recording
- Display of Important Process Data

Online Thickness Gauging & Control System / Model - TG 2024

Features of JASCH Thickness Gauges/Scanners:

Drive Side Cabinet

Electronics Cabinet



Auto Die Control Panel

Industrial Panel
PC with Touch Screen

Features

- Isotope based sensor for weight per unit area/thickness/density
- X-ray sensors for very high speeds and accurate profiles.
- Non-contact measurement of product Thickness or Basis Weight.
- Large size color TFT display suitable for harsh industrial environment
- High speed scanning upto 250mm per second
- Air gap temperature compensation for measurement on Hot webs
- Automatic calibration after pre-defined interval for measurement stability.
- Automatic edge-detection of the web for accurate profile mapping.
- Touch Screen Controls for ease of use
- Precision manufactured O-frame free from deflection and misalignment
- Comprehensive Roll Reports.

Technical Specification - TG 2024

Sensors

- **Radioactive Source (Krypton 85, 200m Ci)**
  - Measurement Range : 10-1200 GSM (g/m^3)
  - Accuracy : 0.25% or 0.25 GSM (which ever is higher)
- **Radioactive Source (Stronitum 90, 50m Ci)**
  - Measurement Range : 100-6000 GSM (g/m^3)
  - Accuracy : 0.25% or 0.5 GSM (which ever is higher)
- **X-Ray Source (4.9KV, 6 watts)**
  - Measurement Range : 5-10000 GSM
  - Accuracy : 0.1 GSM or 0.1% GSM (which ever is higher)
- **Air Gap** : 10-30 mm
- **Operating Temp.** : 0-60 degree Celcius
- **Sampling Time** : 2 msec
- **Air Gap Temperature Compensation**
- **Automatic Calibration**
- **Digital Filter to remove electrical noise**

Scanning Frame

- The scanning frame precisely manufactured, free from deflection and misalignment on an I-beam weldment.
- Linear motion system based on high accuracy LM guide and linear bearings Laser aligned top and bottom head movement path (the total sum of misalignment in X, Y & Z direction is less then 0.5mm) power track cable carriers for reciprocating cables.
- The frame totally enclosed from all sides to shield all mechanical and electronic components (optionally pressurized)
- Steel reinforced timing belt drive.
- Servo motor drive system (max. 16 meter/min.).
- Electronic Scanner misalignment compensation.
- Sensor based on Ionisation Chamber with highly stable electrometer amplifier.
- Automatic Edge Detection of the Web

Operator Station

- Industrial Computer (PC architecture) Configured according to requirements.
- NEMA 4/12 water/dust proof front panel
- Industrial TFT with Touch Screen Control
- Ambient Temperature : upto 50°C

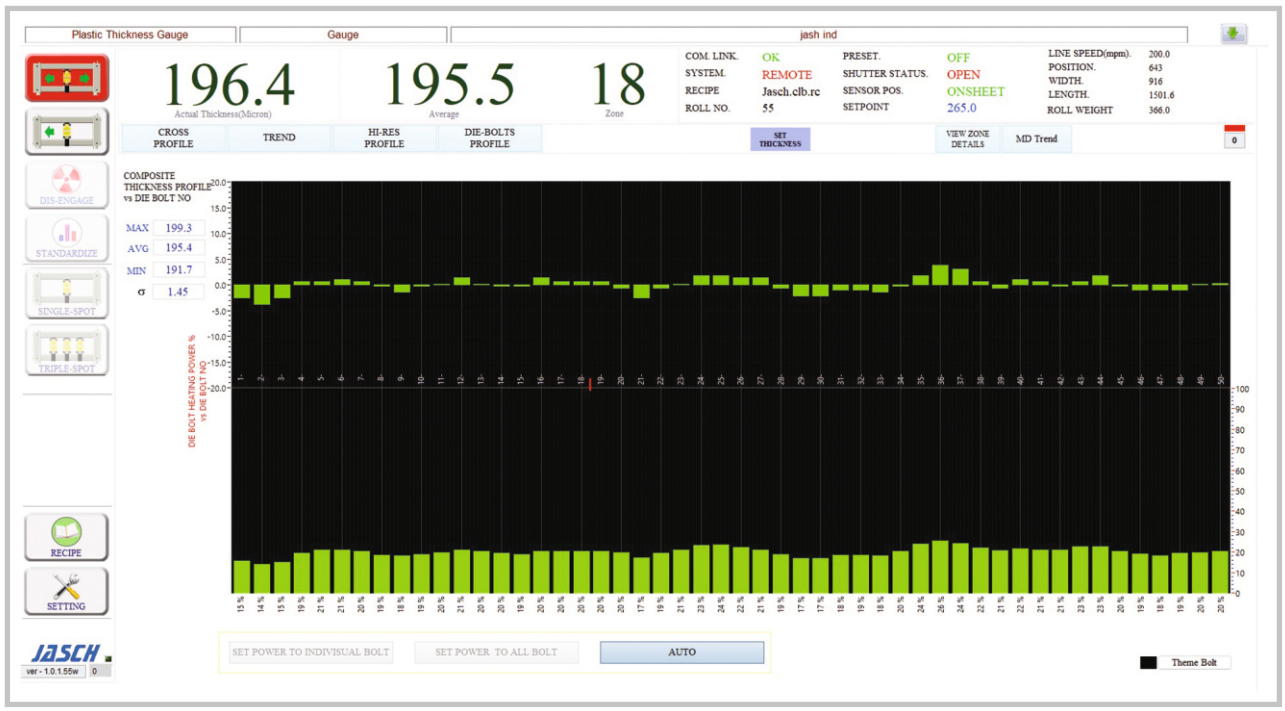
Process I/O

- Inputs: Line speed/web break/roll change
- Outputs: Line speed/screw speed control, roll movement control

Application Software

- High resolution display of
  - Last scan Profile (Actual or zone mapped)
  - Composite profile of N Scans
  - Machine direction Profile
- Trend display
- Roll report
- Recipe Storage
- Data Archiving
- Optional SPC
- Line screw or pump speed control with scan average thickness/weight
- Profile Control
  - Die bolts control
  - Roll Gap control
  - Cross-axis control
  - Roll bending control

The upper screen shows the composite profile of two scans in high resolution. The lower screen shows the previous composite profile for comparison.

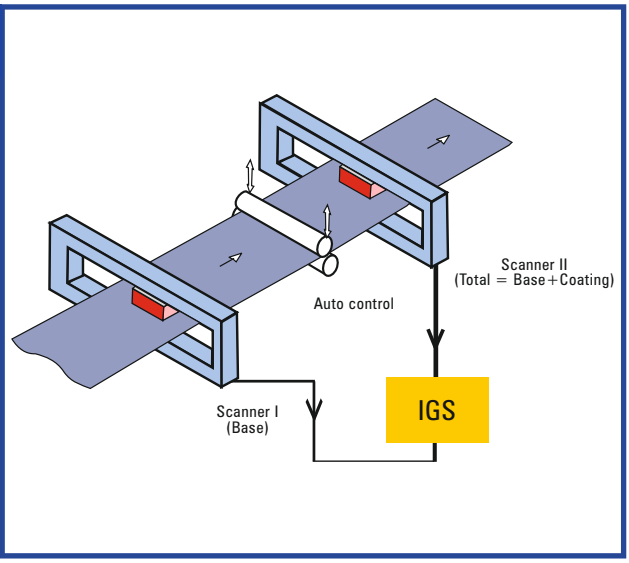


The upper screen shows the scan profile mapped into zones as per die bolt positions. The lower screen displays the graph of die bolt heater power levels.

APPLICATIONS

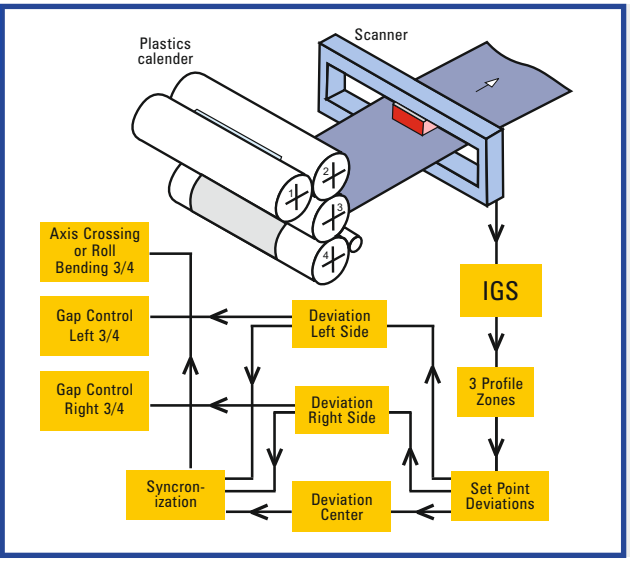
Plastic Coatings

Our Scanner are used in production lines like spread coating lines impregnation lines, extrusion coating lines where a base material is coated with one or more layers, by addition of one extra scanning or fixed gauge. The additional gauge is required to measure the base material before the coating is applied. The differential measurement is then used to control coating profile and the total final coated product thickness The advantage of nuclear gauge is that it can measure the coating in wet state i.e. just after the coating is applied and therefore corrections can be immediately applied.



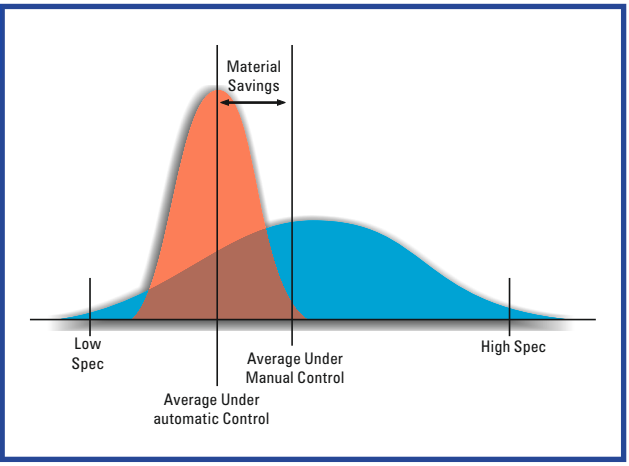
Plastic Calender

The thickness and profile control of calendered plastic films is achieved by dividing the scanned profile into the three zones. The averages of the zones at the edges are used to control right/left nip adjustment of the last roll. The average of the centre zone in synchronism with those at the edges is used to influence either roll bending of the last roll or the cross axis adjustment of the penultimate calender roll.



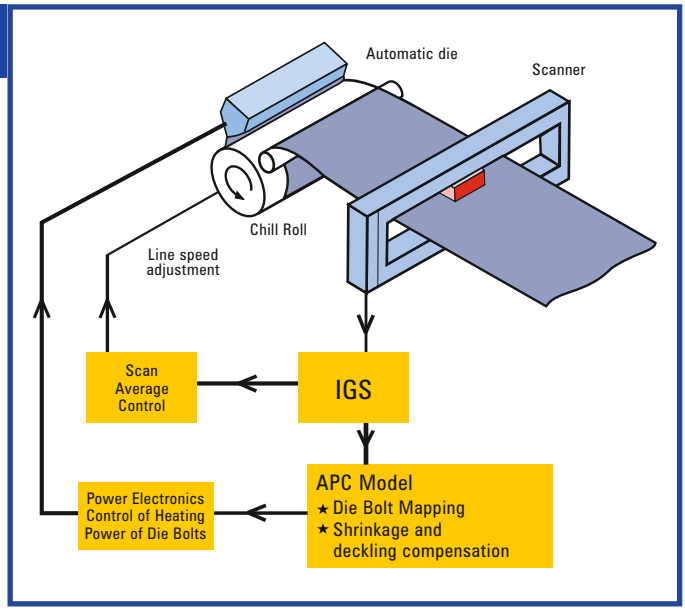
Auto Control Benefit

The raw material is the single largest manufacturing cost in any production set. up. The automatic process control through our scanner reduces the spread in thickness/ basis weight variation and consequently the safety margins are lowered. A resulting set point reduction of even a few percent point can save a lot of precious raw material. Therefore the system repay quickly. Normal repayment is less than a year.



APPLICATIONS

Cast or Extruded Film and Sheet



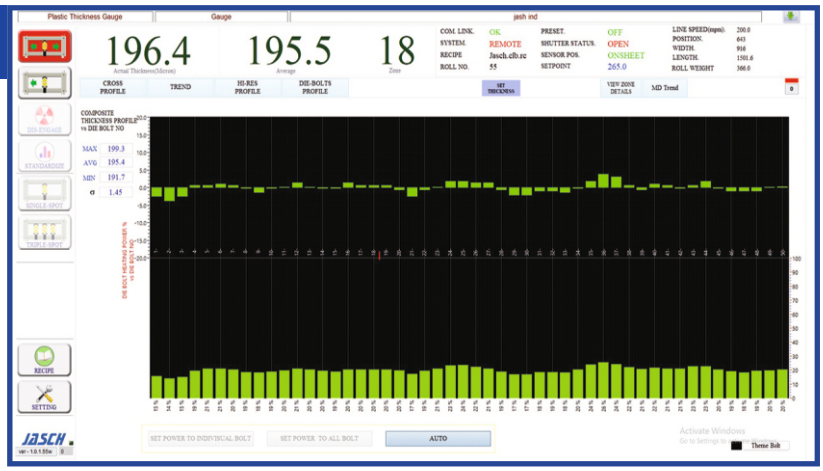
Our Scanner ensures uniformity in machine and cross-web directions of the extruded webs.

The machine direction uniformity is achieved by controlling the line or extruder screw speed through average thickness in every scan.

For cross-web direction control the scanned profile is divided into zones equal to number of die bolts as per APC (Automatic Profile Control algorithm) The set point deviation for each zone is determined based on which corrective signals are applied to the corresponding die bolts by adjusting their heating power. The set point for each zone is taken equal to the last scan average thickness. This decouples the control in the two directions and avoids interference in die bolt control loop from machine direction control. Both the control loops have PID characteristics and equipped to detect sheet breakage to avoid excess line/screw speed in that event. The effect of adjacent bolts interaction can also be incorporated in control loop.

To ensure that each die bolt adjustment affects the right zone on the film the measured profile is precisely mapped to the die bolts. For this purpose our scanner systems uses the primary sensor to find the sheet edges automatically every scan to with in 2mm. This means that dynamic changes of film shrinkage and die deckling are exactly accounted for in every scan.

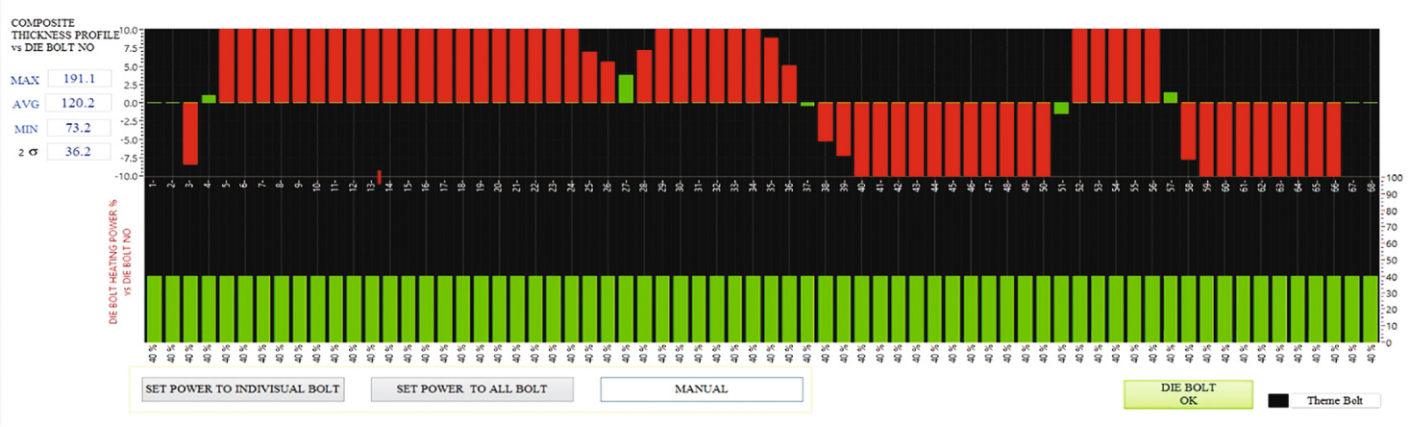
Our Auto Die Control System



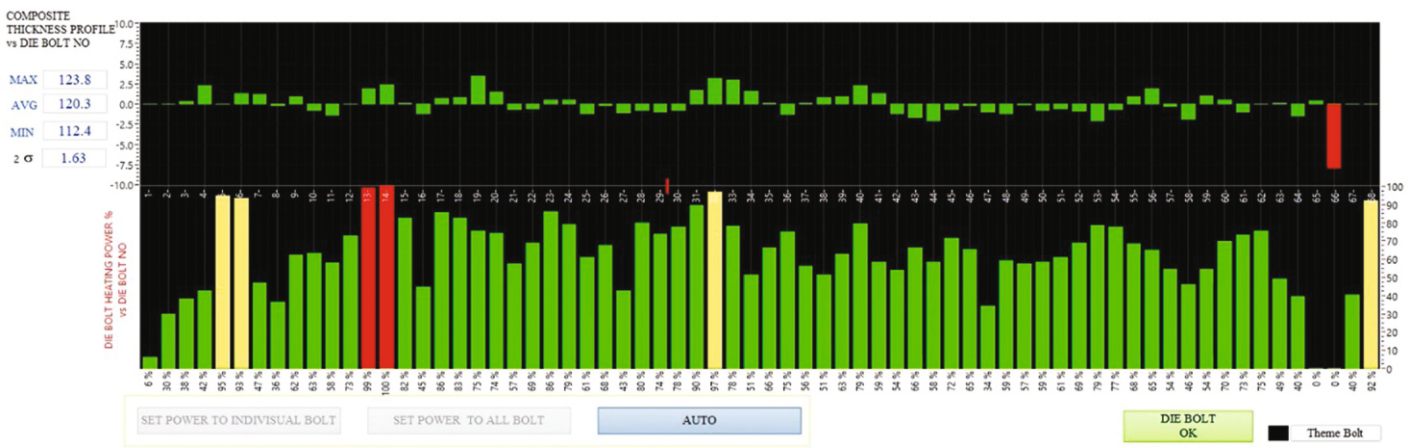
Our Advanced Automatic Die Control is an efficient tool for cross-Direction (CD) profile and advanced sheet finishing.

With a very fast control system, it ensures precise high-resolution CD profile control and meets the challenges to today's processes. Advanced Auto Die Profiling provides high power output with excellent efficiency and reduces rejects at the line, coater and winder and improves machines renewability.

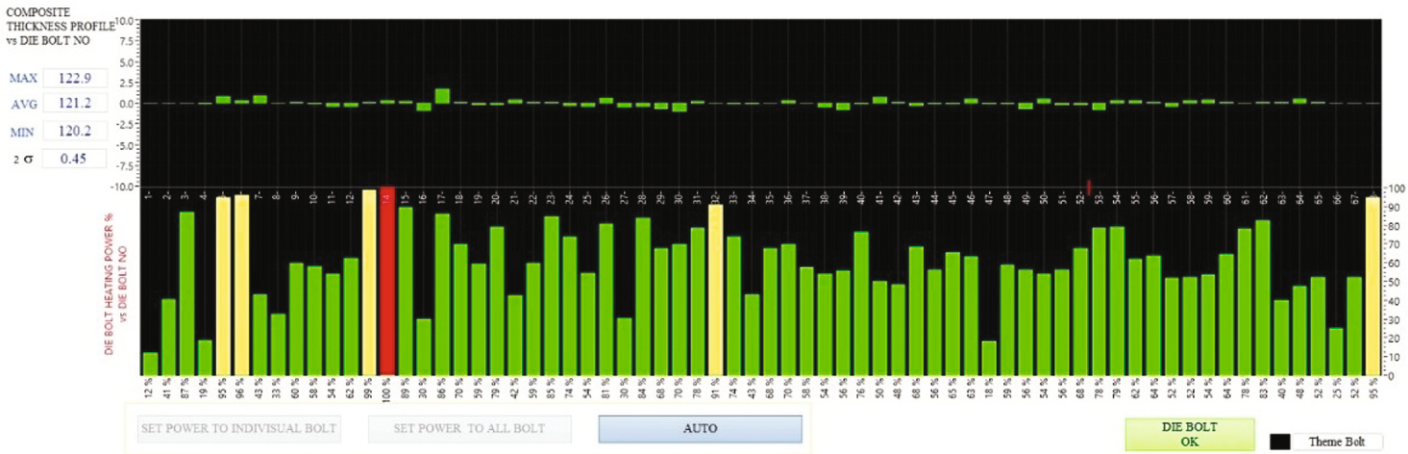
At Line Start-up



At Line Start-up, 2 Sigma value found 36.2 on 120-micron film.



At loading/Winding time 2 sigma dropped from 36.2 to 1.63, immediately after putting in automode, Means Thickness variation controlled by 95.49% in loading/winding time (Normally the loading time is 15-20 min.).



After Increasing line speed, 2 sigma value increased to 3.23 because of change in extruder speed and die pressure which it further controlled in 2 minutes.

JASCH

JASCH GAUGING TECHNOLOGIES LIMITED

(An ISO 9001:2015 Certified Company)

43/2, Bahalgarh Road, Sonipat - 131021, Haryana, India
Phone: +91-130-221666, 8607153600
E-mail: sales@jaschgauging.com | www.jasch.net.in