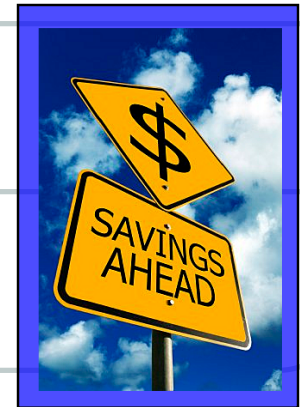


### System offers a 20% to 30% reduction in thickness variations

**FACTS'** customers typically experience a 20 to 30 percent reduction in gauge or thickness variations when replacing an existing control system that is fully functional and properly maintained.



### Case Study

The following is a real-world example and is reasonably typical of customers' experiences.

#### Initial Conditions:

- 4 Roll Z with well maintained older gauge control system
- Production of 63,000 yards/day at nominal 57" width, 6 days/week, 50 weeks/year
- Results from Test Sampling Program before replacing the gauge control system:
  - Total Standard Deviation or  $1\sigma$  Total = .057 lbs./sq. yd.
  - $\sigma$  LTMD = .042 lbs./sq. yd. (Long Term Machine Direction  $\sigma$ )
  - $\sigma$  STMD = .023 lbs./sq. yd. (Short Term Machine Direction  $\sigma$ )
  - $\sigma$  CD = .026 lbs./sq. yd. (Total Cross Direction  $\sigma$ )
  - Only total cross direction data was available in this study

#### Where:

$$\sigma_{Total} = \sqrt{\sigma_{LTMD}^2 + \sigma_{STMD}^2 + \sigma_{CD}^2}$$

Note: Short term variations can not be corrected by the gauge control system.

#### Results after replacing the Gauge Control System:

- Reduced Total  $\sigma$  CD by 20%
- Reduced LTMD  $\sigma$  by 30%

Revised  $\sigma$  Total = .044 lbs./sq. yd.

Overall Reduction in  $\sigma$  = .013 lbs./sq. yd. (.057 - .044)

### Savings:

Taking 2 sigma of the reduction as a target shift

- Uses only 67% of the reduced variation
- Operating within a tighter range than before and
- Achieving substantial material savings
- $2\sigma = .026$  lbs./sq. yd. savings

Savings = .026 lbs./sq. yd. x (57/36 x 63,000) sq. yds. per day = 2,593 lbs./day

At \$1.50/lb., Savings are \$3,890/day or \$1,166,000/year

Results for a calender without a fully functional control system would be even more dramatic.

The actual results are determined by the capability of the gauge control system, condition of the calender and the calender line, and operational practices as previously discussed.

### Maintenance Note

Remember to add the cost for any outside maintenance costs, such as maintenance contracts, replacement parts and other required services. Average maintenance costs for FACTS parts and services in the past five years have been less than \$2,500 per system. This includes parts, on-site services and travel. Customers' internal service costs are also reduced.

No maintenance contract is needed, but is available upon request.