

# PRODUCT INFORMATION SHEET



## TSM GRAVIMETRIC BATCH BLENDING:

TSM Control Systems have been manufacturing batch weighing systems since 1985. The Sigmabatch™ series of gravimetric batch blenders are designed for optimum performance when mounted directly on the extruder or for off-line use. They provide accurate blend ratios and batch homogeneity with a consistency superior to competitive blenders, based on the TSM patented mixing technique (see below.)

### Available Models:

TSM50	(0.5kg):	Up to 50 kg /hr
TSM150	(1 kg):	Up to 150 kg /hr
TSM350	(2 kg):	Up to 350 kg/ hr
TSM650	(4 kg):	Up to 650 kg/hr
TSM1000 Dry	(7 kg) for high temp.:	Up to 1000 kg/hr
TSM1000	(7 kg):	Up to 1000 kg/hr
TSM1600	(12 kg):	Up to 1600 kg/hr
TSM3000	(24 kg):	Up to 3000 kg/hr

### Standard Features:

- **Guaranteed** rapid return on investment;
- Blend accuracies of  $\pm 0.1\%$ ;
- Remote operator console (up to 500 m cable;)
- Quick cleaning features for rapid job-changes;
- Optional extrusion control with Kilogram/Hour, Weight/Length or Micron with unique TSM Rapid Start-up Software and overall control accuracy to  $\pm 0.5\%$  or better.

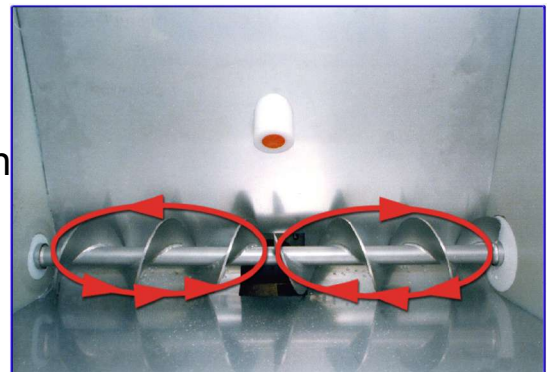
### Compact Heavy-Duty Design

The TSM SigmaBatch™ range of blenders are compact with a low height profile. They are **RUGGEDLY CONSTRUCTED** of heavy gauge steel to withstand the most rigorous of operating conditions. The load cell is overload protected and guarded from physical damage.



The SigmaBatch™ Range

### Patented Mixing Auger



For perfect mixing, every batch - every time  
It must be TSM

## A TOTAL CONTROL SOLUTION

An easy-to-service PLC control module, as shown, contains the blender electronics. The 16 line x 40 character back-lit display is extremely user friendly and provides intuitive text prompts. Up to 100 pre-programmed recipes are instantly accessible, enabling rapid "on-the-fly" order changes. The recipe select and order queue features allow a new job to be downloaded instantly, including blend percentages, thickness, throughputs or job sizes.

As the job progresses the operator can view "set" and "actual" blend recipes, material weights and Kg/Hr throughput, Weight per length or Micron thickness and alarm incidents which are time and date stamped.

### Reporting Options

The system display also provides inventory reporting by component, total weight summaries and current order reports, all keyed with customer and material codes, (time and date stamped). These reports can also be printed via a standard printer.

### Continuous Mixing Section

The SigmaBatch® uses a patented **positive displacement reverse feed auger screw-mixing chamber**, giving the user:

- Perfect homogenous mixing **independent of percentage settings or material density**;
- No separation - guaranteed!
- Consistent head pressure on screw (due to auger action.)

### Integrated Gravimetric Kg /Hr Extrusion Control (optional)

For on-line operation, the Sigmabatch is mounted directly on the extruder feedthroat, eliminating the need for an additional reservoir hopper, significantly reducing the overall height requirements. Extruder screw RPM is controlled directly from the blender unit to maintain the recipe setpoint value.

### Weight-Per-Length Extrusion Control (Optional)

In addition to gravimetric extrusion control, the Sigmabatch can provide yield control by monitoring the line speed of the extruded product. A closed loop control regulates the extruder rate to maintain the target weight-per-length, thickness in Microns or roll weight.

### Central Supervisory Control

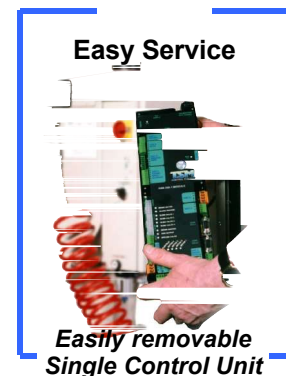
TSM offers a full range of PC-based supervisory control systems for the extrusion process, enabling central supervision of all TSM products. The use of the TSM CP2000 or 9000 NT system allows up to 8 blenders to be linked together to give layer ratio control in the case of a co-ex line configuration, along with a comprehensive reporting package, trending etc. Material handling for up to 8 components per layer can also be controlled, all from the same remote operator panel.

### Vacuum Loading

The Sigmabatch range can also be supplied with individual TSM vacuum loaders utilising a centralised vacuum pump configuration. Control settings (prioritising etc) are provided by a dedicated TSM Vac 350 system.

**For further information please contact us at the address shown, or visit our website.**

TSM reserve the right to change product specifications at any time without prior notice.



### SIGMABATCH BENEFITS AT A GLANCE:

- 0.1% blend resolution for "micro-dosing"
- Low Cost- Rapid Payback
- Easy cleaning
- Quick material change
- Low maintenance
- Compact size
- Positive displacement mixing
- 2-10 Components - with option to upgrade
- Optional extrusion control with 0.5% accuracy ( or better)
- Remote operator console
- Serial output (RS 485/422/232)
- Material usage/ Inventory control reporting
- Self optimising software

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