

# Gravimetric Batch Blending With Extrusion Yield Control

TrueBlend EXT™ Extrusion Control Blenders combine precision gravimetric batch blending with extrusion yield monitoring or control to provide the tightest possible output and blend quality control for single layer extrusion lines.

With the extrusion control option, you can control extruder output to 0.5% accuracy and blended batches to 0.025% accuracy. Tie in an encoder and take-off drive control and you can control line speed and product weight-per-length.



Model TB45-4 EXT

## Integrated Extrusion Control Blender

TrueBlend EXT™ delivers the industry's best multi-component feed accuracy and precision extrusion control.

**Better product quality:** TrueBlend EXT's advanced dosing algorithm meters the target weight of each batch ingredient in progressively smaller 'approach' amounts to achieve extremely precise dosing without ever overshooting. The batch continues only after the desired accuracy is achieved for the current ingredient.

**Better yield:** TrueBlend EXT employs adaptive control and monitoring software that measures the throughput rate and automatically controls the extruder screw and/or take-off speed to achieve the yield or extrusion thickness tolerance you need.

**Better flexibility:** Standard systems blend up to 12 components. Designed for feed throat mounting, the blender can optionally be remote mounted from the TrueWeigh Loss-in-Weight Hopper.

### ▶ Simple operator control meets every need

Designed for extruder operators with varying skill sets. Intuitive input and recipe screens are laid out according to the extrusion process. Touch buttons provide access to recipes, extruder output, line speed, weight-per-length, material usage, alarms and reports. Built-in help screens walk you effortlessly through set-up and operations.

### ▶ Up-to-the-minute inventory reporting

TrueBlend EXT™ provides real time and historical trending production status reports. Comprehensive reports include; job name, recipe setpoint and actual, components, inventory and shift totals, alarms and more. Alarm log stores 100 or more events in memory. Automated reports can be sent direct to printer, USB or accumulated on a customer's PC hard drive.

### ▶ Anywhere access

The TrueBlend EXT comes standard with a built-in VNC viewer (Virtual Network Client) and OPC server. VNC allows remote Ethernet IP based monitoring and control anywhere within a private network and OPC offers simple integration with an extruder or plant supervisory control system. The control is supplied standard with Modbus TCP, Ethernet IP and FTP. Optional interface protocols are available.

# How it Works

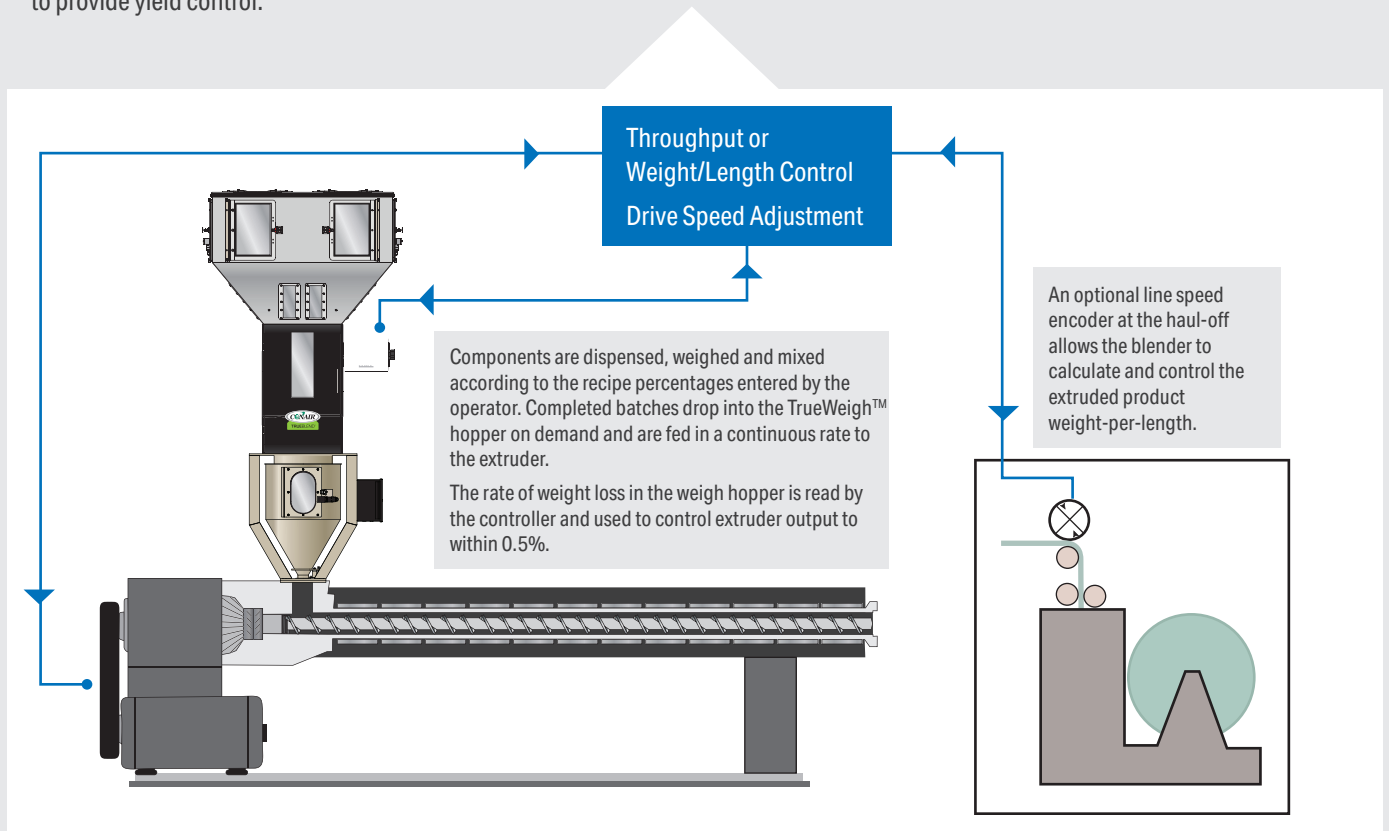
TrueBlend EXT™ can control the extrusion process, as well as gravimetrically blend material. Throughput and haul-off control options allow you to:

- Monitor or control extruder throughput.
- Monitor or control haul-off.
- Monitor and control line haul-off and extruder throughput to provide yield control.

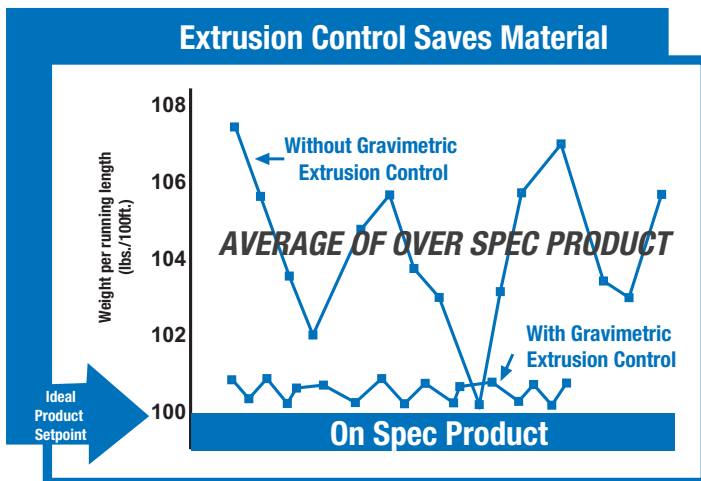
Line control options include weight-per-length, weight-per-area and thickness; all as functions of length or weight-per-time.

TrueBlend EXT can control one mono-extrusion line consisting of a homogenous blend of up to twelve ingredients.

For co-extrusion lines, the optional TrueWeigh layer ratio control system supervises up to twelve extruders feeding common die.



The TrueBlend EXT™ yield control option adjusts the extruder screw speed to compensate for material variations and other process variables while monitoring/controlling the haul-off speed – continually delivering precise dimensional stability at minimal tolerances.



### Increase yield up to 4%

The TrueBlend EXT™ blending system slashes raw material waste by providing precise control of consumption and length of extruded product.

TrueBlend EXT's advanced control algorithm automatically compensates for material variations to maintain consistent throughput or weight-per-length.

This means material can be extruded at the ideal set point and optimum tolerances.

## Features

### Safety first

All major electrical components are UL and CE approved. Material bins are provided standard with finger guards or optionally with bin access door interlocks. The mixing chamber access door is interlocked with the power supply to the blender motor and compressed air solenoids.

### No spills, no leak chassis

Rugged, closed chassis assures all weighed pellets move from the weigh pan to the mixer to the machine. No pellets escape the chassis, improving operator safety and ensuring blend integrity.

### 100% visibility into the materials bins

Material levels, ingredient type, and position are quickly identified and confirmed.

### Internal, protected, no-stick vertical valves

Internal 2-way pneumatic valves are away from external operator access and are separated from the pellet flow by protective shrouds.

### Blend up to 12 components

Comes standard with 4 or 6 bins. The blender can be upgraded to 12 positions for material staging or complex recipes.



### Any material from any bin

Any bin can be set up for any material type. Bin sequencing is automatic or can be set manually.

### No-tools cleaning

Clean-out for materials and color changes is fast and easy. No hang-up or hiding places in material bins. Weighing and mixing components remove in seconds.

### Paddle mixer

Aggressive paddle mixer assures homogeneous blending. Relief notches in the mixer blades prevent trapping of pellet. All models are supplied with electric mixing motors for complete 360 degree mixing rotation.

### Mass flow Loss-in-weight hopper

60° cone angle assures mass flow to prevent separation in the weigh hopper.

### Weigh hopper precision load cell

High accuracy precision cantilever load cell allows extruder output control to +/- 0.5%.

## Options



### Air blow-Off for mix chamber level sensor

This feature is integrated into the blender mix chamber to blow excessive dust and fines away from the sensing device and ensure accurate level sensor reading.



### Material level alarm control

Eliminate costly material shortage problems and machine downtime with this early warning system. The control monitors up to six material levels at one blender. Individual switches can be adjusted to monitor high or low material levels. See Level Alarm Control specification sheet.



### Self clean

Hands-free cleanout. No equipment tear-down. TrueBlend self clean system sequences compressed air nozzles to evacuate material from all contact surfaces, providing fast material changeovers.



### Drain chute

The material drain chute readily installs to the chassis opening of the blender for fast and simple cleanout.



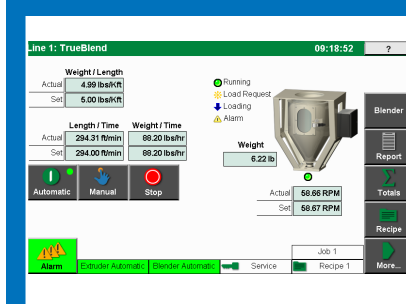
### Remote mixer demand sensor

This sensor provides a fill-to level option in a surge bin or other material receptacle that sits below a remote mounted blender.

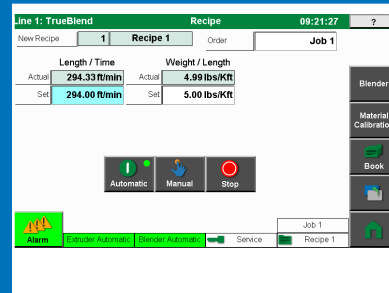
### Other available options include:

- TrueBlend high heat models
- Re grind flow enhancers
- Minor component flow restrictor
- Remote blender mounting
- Major component flow restrictor
- Dry air blanket

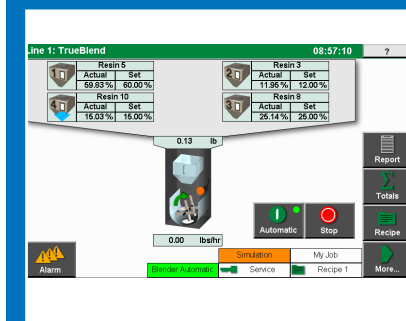
# Control



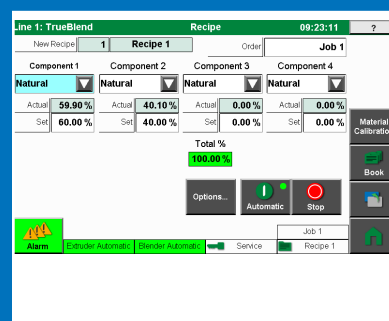
Home screen shows up-to-the-moment line performance. Settings and the actual status from the weigh hopper, extruder output, extruder and haul-off drive RPM, line speed and weight-per-length are presented in an easy to read full-color graphic display.



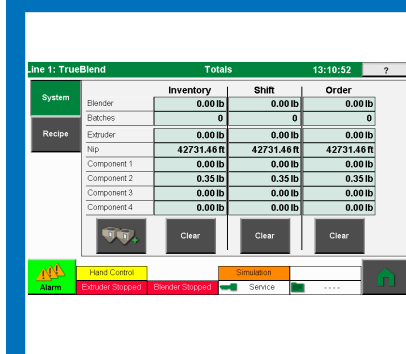
Line recipes are easy to enter and save to ensure repeatability, improved inventory and process control job to job. Material set points are automatically loaded and locked independent of operator skills. A recipe book provides access to up to 500 stored production recipes.



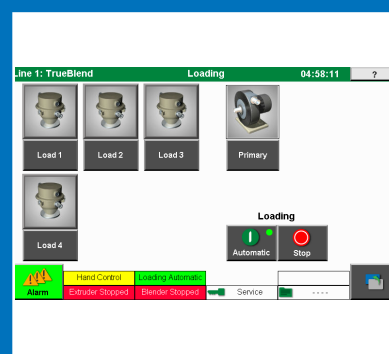
The blender home screen offers instant viewing of recipe set points and the actuals by bin position and total inventory processed since last reset. Touch buttons provide easy access to blender recipes, total materials, reports, loader settings and more.



Blender recipe simply asks for component as a percent or part of the batch. Up to 500 recipes can be stored in the recipe book for quick set-up and assured repeatability. Options allows quick setup of any position for any material and allows automatic or manual bin sequence selection.



Totals screens instantly show up-to-date inventory and shift data for total inventory processed, number of batches, linear feet (m) processed through the nip or puller, and extruder output. Totals for recipes and individual components are also shown. Data is easily outputted to several report options.



Operate up to thirteen loaders and one pump directly through the blender control. Allows full loader functionality, including priority loading selection.

## Standard Features

- 7-inch touchscreen operator interface panel
- PLC based controls
- Numerous languages available with one button key press
- Audible/Visual alarm
- Control up to 12 material positions
- Simple, menu driven, Q&A set-up

## Optional Features

- Extrusion control
- Extruder and haul-off drive control cards. The type of drive control outputs are: 0-10 VDC, up/down interface and motorized potentiometer.
- Haul-off drive control includes drive card and pulse encoder
- Remote communication protocols
- Bumpless transfer of control (motorized potentiometer or signal isolator board or pulse encoder)
- Integral Loading System allows the user to load up to a 13 receivers (12 component blender) within the same blender/extrusion control touchscreen interface. Utilizing a single controller to maintain both the integrity of the blend, the extrusion process and the loading equipment provides the most economical approach to gravimetric blending, extrusion control and blender loading interface.
- VNC Viewer (Virtual Network Client) allows you to view or operate the touchscreen remotely on any Windows XP compatible PC. The user is presented with a virtual image of the system touchscreen. This off-the-shelf remote communication solution can view or operate any number of TrueBlend™ EXT or TrueWeigh touchscreens within a customer's plant. All the parameters accessed at the system touchscreen can be accessed with the VNC viewer.



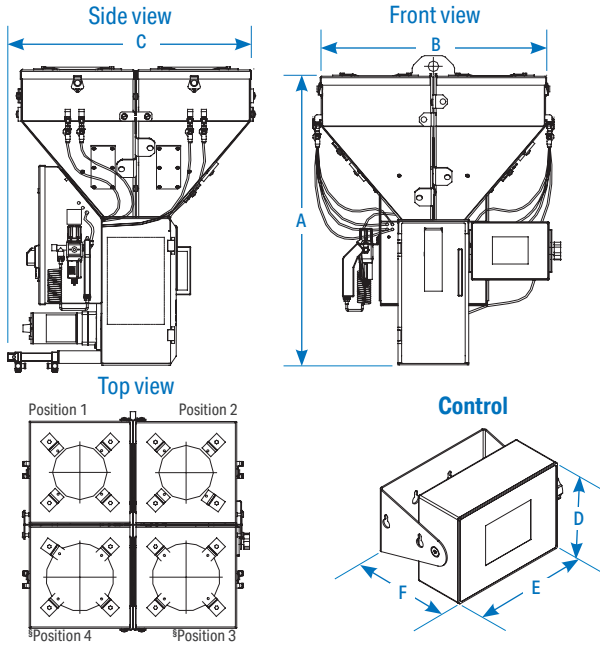
# Specifications

Models Figure Number	TB-45 EXT <sup>†</sup> Figure 1	TB-100 EXT Figure 2	TB250-4 EXT Figure 3	TB250-6 EXT Figure 3	TB500-4 EXT Figure 3	TB500-6 EXT Figure 3	TB900-6 EXT <sup>†</sup> Figure 3	TB900-6 EXT <sup>†</sup> Figure 3
<b>Performance characteristics</b>								
Batch size lbs [g]	1.0 {450}	2.2 {1000}	5.5 {2500}		11.0 {5000}		19.8 {9000}	
Maximum throughput lbs/hr {kg/hr}*	140 {63}	310 {140}	880 {399}	675 {306}	1400 {635}	1050 {476}	2850 {1292}	2350 {1066}
Bin capacity - main ingredient ft <sup>3</sup> {liter}	0.20 {5.7}	0.60 {17}	1.60 {45.3}	2.70 {76.4}			4.40 {124.6}	
Bin capacity - minor ingredient ft <sup>3</sup> {liter}	0.20 {5.7}	0.30 {8}	1.60 {45.3}	1.40 {39.6}	2.70 {76.4}	1.35 {38.2}	4.40 {124.6}	2.20 {62.3}
Maximum number of materials	4			6	4	6	4	6
Number of vertical discharge valves	4			6	4	6	4	6
Number - (size) of major bin valves	2 -{40mm}		2 - {60mm}		2 -{100/60mm}		2 -{100mm}	
Number - (size) of minor valves	2 -{20mm}		2 -{30mm}	4 -{30mm}	2 -{30mm}	4 -{30mm}	2 -{60mm}	4 -{60mm}
<b>Dimensions inches [mm]</b>								
A - Height above mounting plate	30.90 {785}	45.00 {1145}	57.50 {1461}	63.00 {1600}			74.75 {1896}	
B - Width	23.63 {600}	30.25 {769}	36.50 {926}	40.13 {1026}			48.50 {1229}	
C - Depth	25.78 {655}	31.85 {809}	40.83 {1037}	42.67 {1084}	43.00 {1092}		51.00 {1296}	
D - Control height	8.25 {209.6}							
E - Control width	9.25 {235}							
F - Control depth	4.75 {120.6}							
<b>Approximate weight lbs [kg]</b>								
Installed	75 {34}	160 {72}	320 {145}	400 {182}			550 {249}	
Shipping	125 {57}	270 {122}	440 {200}	520 {236}			700 {318}	
<b>Voltage Full load amps</b>								
115V/1 phase/60 hz	1	3	6.3					
230V/1 phase/50 hz	0.5	1.5	3.2					
<b>Compressed air requirements</b>								
Discharge Valves	90 psi @ 0.2 ft <sup>3</sup> /min ( 6 bars @ 0.09 liters/sec); 1/4 inch NPT fitting							
<b>Maximum loader sizes</b>								
8-inch loaders	4	2	N/A	4	N/A	4	N/A	2
12-inch loaders	N/A	2	N/A	N/A	N/A	N/A	N/A	N/A
15-inch loaders	N/A	N/A	4	2	4	2	N/A	2
20-inch loaders	N/A	N/A	N/A	N/A	N/A	N/A	4	2
<b>TrueWeigh hopper</b>								
Configurable hopper	TWH-05		N/A	N/A	N/A	N/A	N/A	N/A
Configurable hopper	TWH-27 <sup>†</sup>						N/A	N/A
Configurable hopper	N/A				TWH-44			
<b>Hopper Model</b>								
<b>Performance characteristics</b>								
Hopper capacity ft <sup>3</sup> {liter}	0.5 {14}	2.7 {76}	4.4 {125}					
<b>Dimensions inches [mm]</b>								
G - Height	18.5 {469.9}	30.5 {774.7}	42.0 {1066.8}					
H - Depth	12 {343.8}	20 {508}						
J - Hopper width	18 {457.2}	26 {660.4}						
K - Overall width	23.91 {607.3}	32.12 {815.9}						
L - Mounting plate width	10.16 {257.9}	11.00 {279.4}						
M - Square bolt pattern	8 {203.2}	9 {228.6}						
N - Hole diameter (bottom)	2.68 {68.3}	3.00 {76.2}						
<b>Approximate weight lbs [kg]</b>								
Shipping	75 {34}	125 {57}	250 {114}					
<b>Specification Notes</b>								
<p>* Maximum throughput rates are based on 35 lb/ft<sup>3</sup> pelletized material, using all standard valve sizes. Use of reducer inserts will lower the rate shown.</p> <p>Throughput rates are based on:                      A 4-position blender recipe of 20% regrind, 80% natural, 3% color and 2% additive material.                      A 6-position blender recipe of 20% regrind, 80% natural, 3% color at position 3, 2% additive at position 4, 3% additive at position 5 and 2% additive at position 6.</p> <p>Higher throughput models are available. Consult with a Conair representative for more information.</p>								
<b>Specification Notes (continued)</b>								
<p><sup>†</sup> TB45 EXT requires a plate adapter to bolt directly to a TWH-27 hopper.</p> <p><sup>‡</sup> TB900 EXT cannot be supported directly by a weigh hopper. Blender requires remote stand or mezzanine mounting. Associated weigh hopper requires separate surge hopper with slide gate and loader.</p> <p><sup>§</sup> TB45 and 100 hopper positions three and four are supplied with 12-8 adapters with eight inch cover plates as standard.</p> <p><sup>**</sup> TB250-4 hopper positions two and four are supplied with 12-8 adapters with eight inch cover plates as standard.</p> <p><sup>††</sup> TB250-6 hopper position two is supplied with a 12-8 adapter with an eight inch cover.</p> <p><sup>†††</sup> TB500-4 hopper positions three and four are supplied with 12-8 adapters with eight inch cover plates as standard. TB500-6 hopper position two is supplied with a 12-8 adapter and an eight inch cover plate as standard.</p> <p><sup>§§</sup> TB900-4 hopper positions three and four are supplied with 12-8 adapters with eight inch cover plates as standard. TB900-6 hopper positions three and six are supplied with 12-8 adapters and eight inch cover plates as standard.</p> <p>Specifications may change without notice. Consult with a Conair representative for the most current information.</p>								

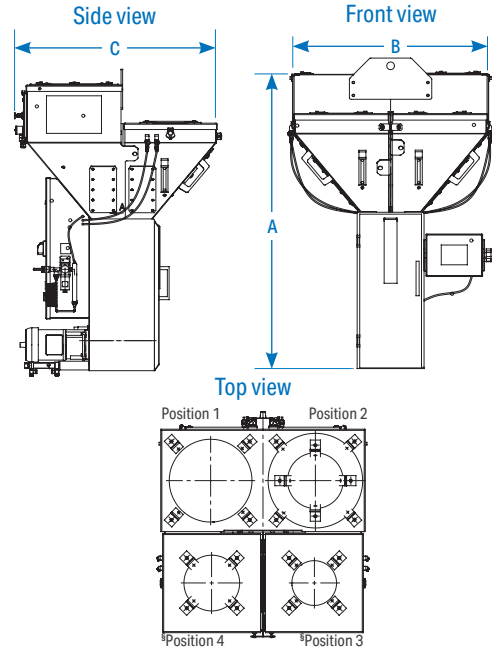


# Specifications

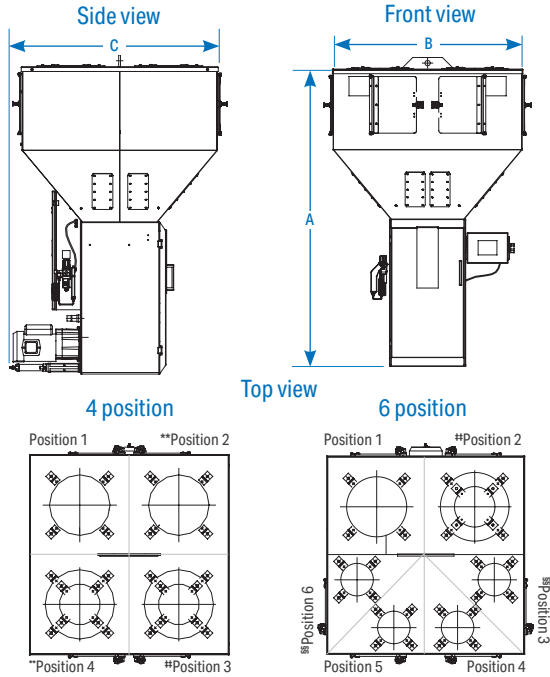
**TB45 EXT Figure 1**



**TB100 EXT Figure 2**

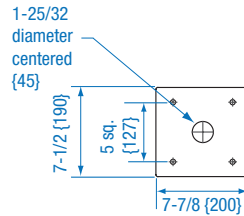


**TB250, TB500, and TB900 EXT Figure 3**



**Mounting Interface TB45-4**

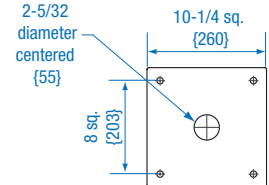
Mixing chamber access door - this side of the interface



Mounting bolt hole size (4 holes)  
 7/16 inch (11.0 mm). Predrilled 5 x 5 mounting pattern as standard.

**Mounting Interface TB100**

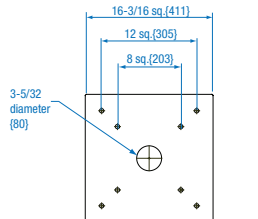
Mixing chamber access door - this side of the interface



Mounting bolt hole size (4 holes)  
 9/16 inch (14.0 mm). Predrilled 8 x 8 mounting pattern as standard.

**Mounting Interface TB250 - 500**

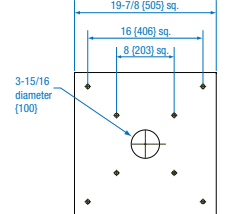
Mixing chamber access door - this side of the interface



Mounting bolt hole size (8 holes)  
 9/16 inch (14.0 mm). Predrilled 8 x 8 and 12 x 12 mounting pattern as standard.

**Mounting Interface TB900**

Mixing chamber access door - this side of the interface



Mounting bolt hole size (8 holes)  
 9/16 inch (14.0 mm). Predrilled 8 x 8 and 16 x 16 mounting pattern as standard.

Dimensions shown in inches and (mm).

