



Multi-Blend



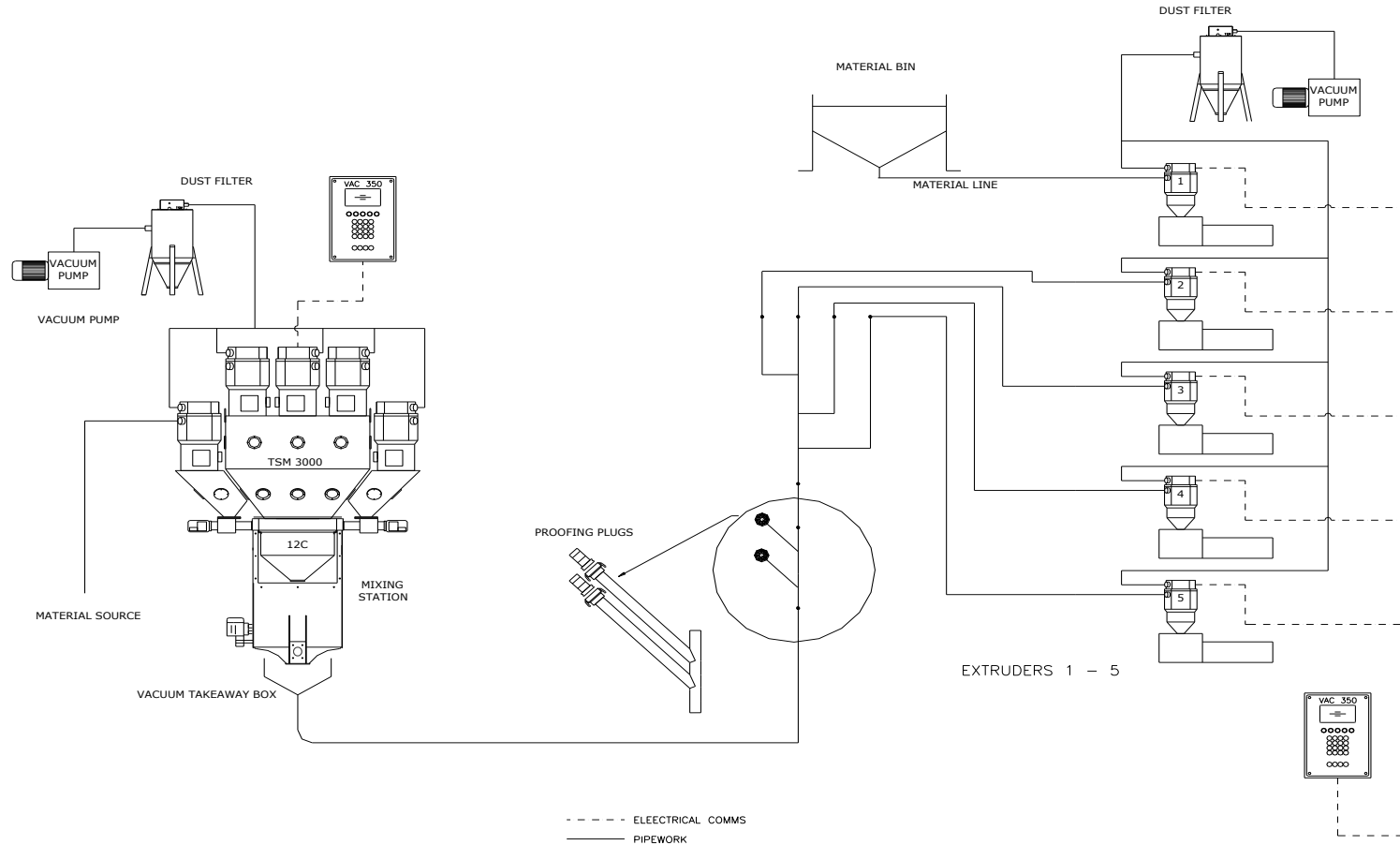
MULTI-BLEND

***CENTRALIZED
OFFLINE BLENDING***





Multi-Blend – The Concept



To Blend and Distribute Recipes from multiple Centrally Located Gravimetric Batch Blenders to multiple Extruders



- **One Blender can Service any Number of Extruders**
(Limited Only by Throughput / Time Considerations)
- **No Cross Contamination of Materials**
- **Avoids the Requirement of Multiple Blenders and Multiple Loaders on Each Line**
- **Reduces Installation Costs**
- **Reduced Pipe Runs for Each Extruder**
- **Faster Order Changes**
- **Cleaning of Central Blender Only, if Required**



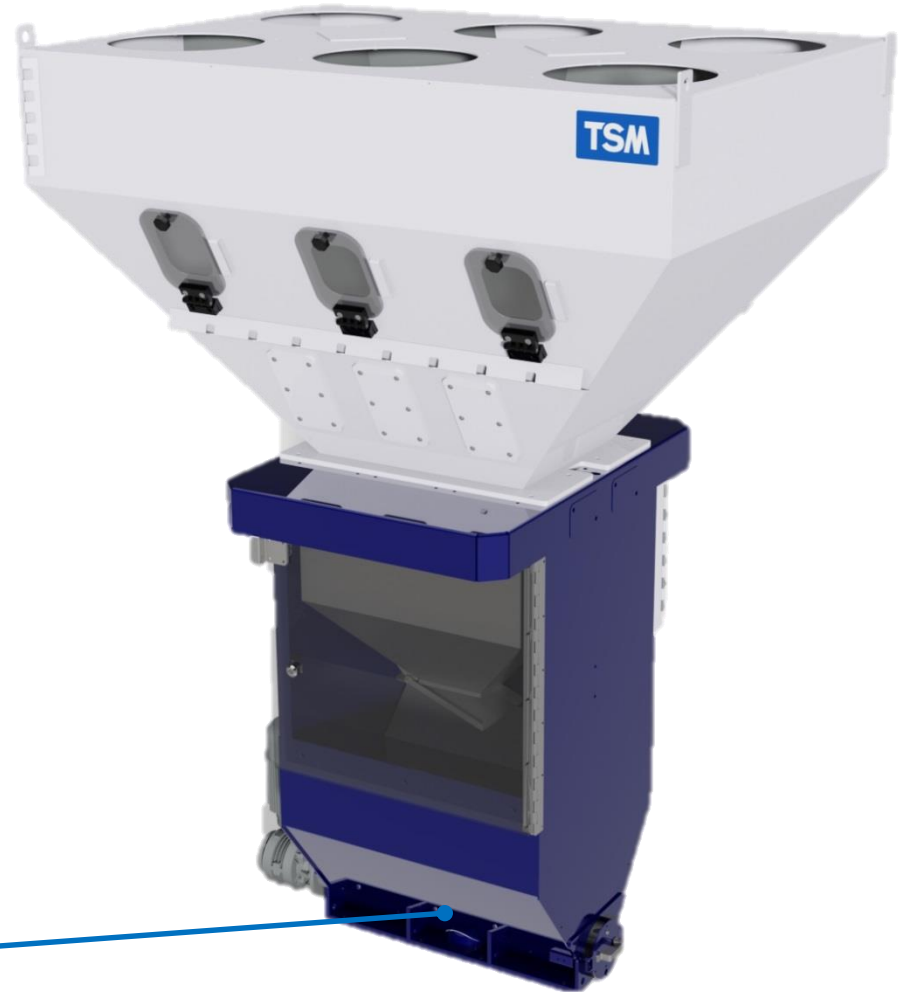
- Each Blender can Handle up to 12 Components
- In a Multiple Extruder Environment with Individual Blenders on Each Extruder, it is Necessary to Clean Each Blender Between Each Order. Multi-Blend Eliminates this Time Consuming Exercise and Limits Cleaning to One Blender
- Minimal Pre-Blended Material at end of Order
- Emptying out Less Hoppers for Order Changes
- Ease of Use Due to Centralization of Blending
- Lack of Contamination Issues on Material Feed Pipes to Multiple Blenders
- Can use 2nd Vacuum Receiver on the same Extruder to Handle Difficult Materials, such as Nylon





Multi-Blend – Material Mixing

- Patented Reverse Flight Mixing Auger
- Guaranteed Homogenous Mixing
- No Dead Areas in Mixing Chamber
- No Separation of Materials





Multi-Blend - Features

- Multiple Recipe Database
- Batch to Batch Consistency of up to 0.02%
- Adjustable Mixing Time



	Extr Name	Recipe No.	Status
1	ex2	2	Disabled
2	ex4b	4	Disabled
3	ex6	6	Disabled
4	ex7	7	Enabled
5	ex8	8	Enabled
6	ex9	9	Enabled
7	-	0	Disabled
8	-	0	Disabled
9	-	0	Disabled
10	-	0	Disabled
11	-	0	Disabled
12	-	0	Disabled
13	-	0	Disabled
14	-	0	Disabled
15	-	0	Disabled
16	-	0	Disabled

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Pause

- Each Extruder has an Associated Recipe
 - When the Extruder calls for Material, the Panel Downloads the Recipe for that Extruder to the Blender
 - The System Monitors which Extruders are Enabled



- On Each Extruder there are Vacuum Receivers which Make up a Vacuum System for Loading the Recipes to the Extruders
- These Receivers Vacuum the Material Directly from Vacuum Take Away Box under the Blenders.



- The Vacuum Receivers are Controlled from a Remote Panel





Multi-Blend – Material Distribution



Materials are Loaded into the Blender Reservoir Hoppers from Storage Silos or day bins Beside the System





When an Extruder Requires Material, a signal is Sent to the Blender which Prepares and Mixes the Recipe.



- When the Batch for that Extruder is Mixed, it is Released to the Vacuum Take Away Box
- The Blender then Automatically Initiates the Cleaning Cycle in Preparation for the Next Recipe
- Once Released, Materials are Conveyed to the Appropriate Extruder.



- Complete Cleaning and No Contamination
- TSM Architecture Allows the use of more than one Central Blender, thus allowing Complete Separation of Incompatible Materials with a Multi-Layer Environment
- Use of Proofing Plugs Ensures;
 - 1) that the Correct Recipe is being Blended in the Correct Blender
 - 2) that the Recipe is Delivered to the Correct Extruder
- The Unique Patented Multiple Stage Cleaning Applied in the TSM Multi-Blend is a By-Product of Intensive Development Carried out by TSM for Stringent Fiber Industry Applications

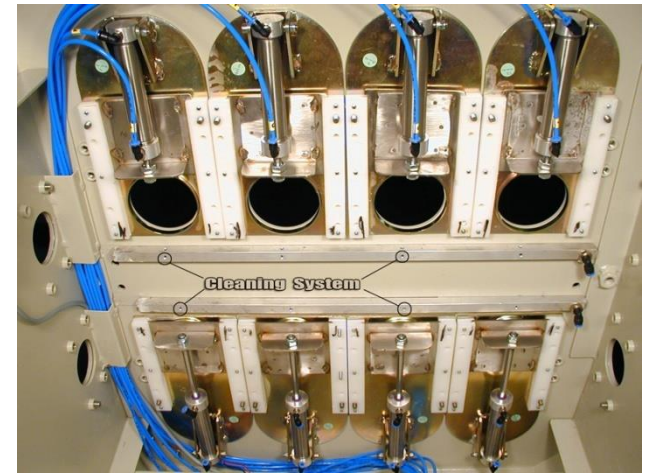
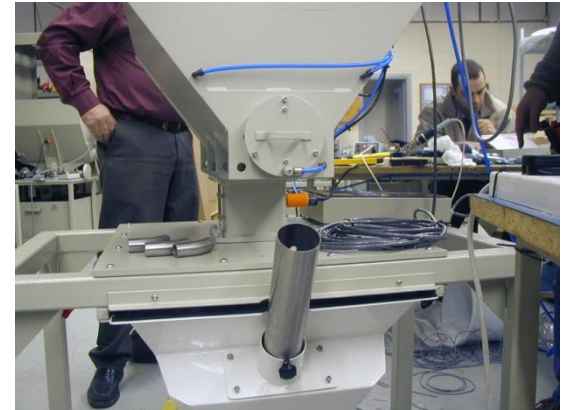


- The TSM Gravimetric Blender is Fitted with the Unique Auto Cleaning System.

- Beginning at the top, Under the Slide Valves and Working Down to the Mixing Chamber, Air Jets are Activated.

- Any Loose Pellets are Blown Down in to the Vacuum Take Away Box before the Slide Valve Under the Blender Closes

- The Blender is now Entirely Clean and can be Used to Mix a Different Recipe.





Multi-Blend – Review of Process

Extruder Calls for Material



Status is Read by the Operator Panel



Recipe Associated with Extruder Downloaded



Blender Doses and Fills the Recipe,



Dumps the Recipe for Mixing





Multi-Blend – Review of Process

Blender Will Mix the Material For A Specified Time



Material Released To Vacuum Take Away Box



Blender Is Cleaned Out



Material is Conveyed to Extruder



All Extruder Bins Full - Loading And Blending System Remain Idle.

