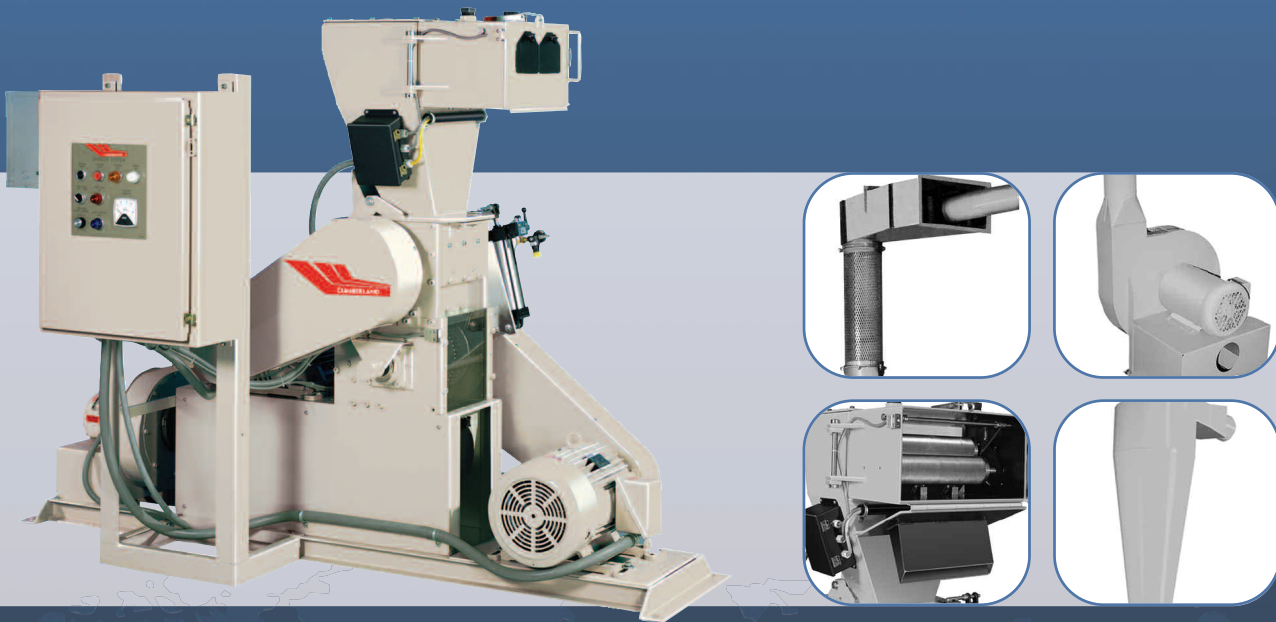


SCRAP RECLAIM

Scrap Handling and Reclaim Systems



Film Reclaim Systems Reduce Cost and Improve Quality

Cumberland's film scrap reclaim systems can reduce your costs by grinding scrap and conveying it directly back into your extruder. This process offers numerous advantages over re-pelletizing. Scrap is restored to its original feedstock value, and no additional heat history is added to the material.

Contamination risk and labor costs are reduced because material is not handled as often. Repelletizing costs, which often run \$.15—\$.25 per pound are eliminated, and scrap inventory is reduced or eliminated. With Cumberland's scrap reclaim systems, you will see an improved finished product and a high return on your investment.

www.cumberland-plastics.com

Cumberland has innovative scrap handling and reclaim systems for your process. The following equipment and services are available:

- Film reclaim systems, including grinders, fluff re-feed machines and conveying equipment
- Gravimetric batch and continuous blenders
- Complete material handling systems
- Drying systems
- Process cooling equipment
- Installation, start-up and training services

The Advantage of Scrap Recycling with a Cumberland Fluff Feed System Are:

- Patented dual-stage feed system includes two separate augers to improve consistency and processability of the fluff and pellet mix
- Significant cost savings from reduced material consumption
- Reduced material usage as a result of a steadier process, resulting in lower scrap generation
- Reduction of process orientation, by minimizing inconsistent surging normally encountered when trying to feed materials with varying bulk densities

Specific Advantages Over Repelletizing

- Scrap inventory is reduced or eliminated
- Elimination of repelletizing cost, often \$.15-\$.25 per pound
- Improved finished product quality
- High return on investment
- Scrap is restored to its original feedstock value
- No additional heat history is added to the material
- Less risk of contamination
- Less handling of the material results in reduced labor cost

Typical Return On Investment

A line producing 2,000,000 pounds/year has a yield of 1,880,000 pounds/year. At \$.40 per pound, the 120,000 pounds of trim scrap represents \$48,000, not including disposal costs. Feeding this material directly back into the process is like putting money in your pocket!



Model 450TFH
Fluff Feed System

Fluff Feed Systems

Cumberland fluff feed systems are designed to feed a percentage of the fluff directly back into the extruder throat. The unique dual-stage design ensures that the fluff is mixed with the virgin material above the extruder throat. Each auger is independently adjustable and can be set to follow the extruder screw speed by monitoring a tachometer signal from the extruder.

The TE unit is designed to re-feed edge trim only. The TFH will handle up to 30% of the edge trim and/or scrap. The TFH-HP is designed for those applications where scrap re-feed greater than 30% is common.

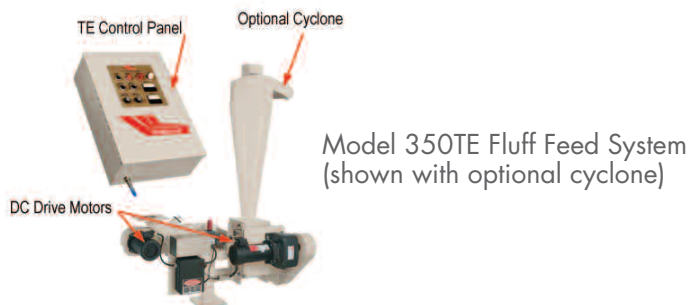
| Models | TE | TFH | TFH-HP |
|---|------|------|--------|
| Patented dual-stage fluff feeder | X | X | X |
| Metering slaved to extruder speed | X | X | X |
| Isolation circuitry | X | X | X |
| Independent auger drive control | X | X | X |
| Exclusive auger design to ensure thorough mixing | X | X | X |
| Access door in hopper for cleaning | X | X | X |
| Optical level sensor (with blow-off kit) in fluff supply hopper | opt. | X | X |
| Access door in feed tube for cleaning | opt. | opt. | X |
| DC drive motors | X | - | - |
| Brushless AC inverter duty motors | - | X | - |
| Brushless AC flux vector drive motors | - | - | X |

TE and TFH Systems for Efficient Edge Trim and Roll Stock Recycling

- Independently adjustable horizontal and vertical drives precisely control fluff metering and homogeneous mixing of the pellet/fluff mixture at the extruder throat
- Metering and mixing is slaved to the extruder via signal isolation circuitry
- Exclusive vertical auger design provides thorough mixing to assure constant extruder screw pressure and improved gauge control, resulting in better product
- TE units equipped with DC motors and TFH units equipped with inverter duty AC motors



Model 350TE Fluff Feed System With Control Panel (shown with optional cyclone)

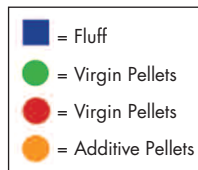
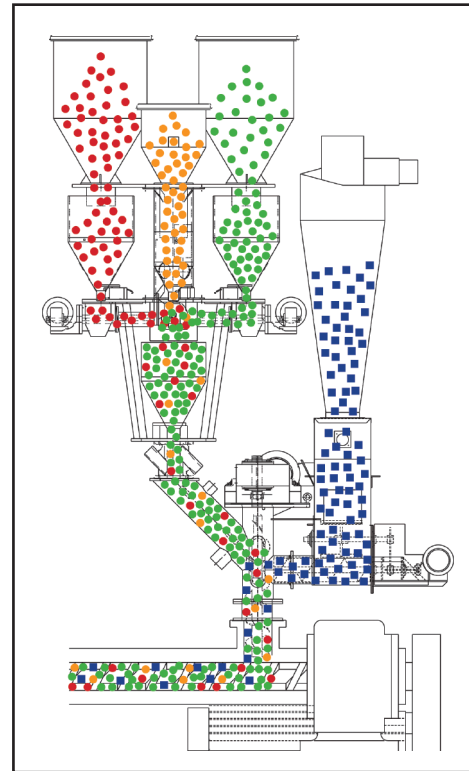


High Performance STFH-HP Models Handle the Toughest Film Scrap Conditions

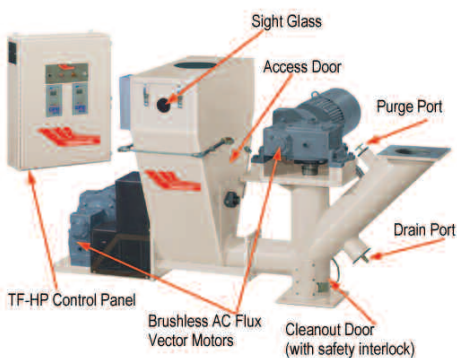
- Brushless AC flux vector drive motors
 - 150% torque rating, full torque @ 0 RPM
 - Adjustable acceleration and deceleration
 - Programmable auto restart
- High-performance vertical feed auger incorporates vertical compaction and mixing to allow the maximum fluff re-feed percentages possible
- Heavy-duty re-feed pedestal



Model 600TFH-HP Fluff Feed Hopper With Control Panel



Patented Dual-Stage Fluff Feed System Provides For Optimum Feed Control of Light, Fluffy Film Reclaim



Edge Trim Conveying Systems

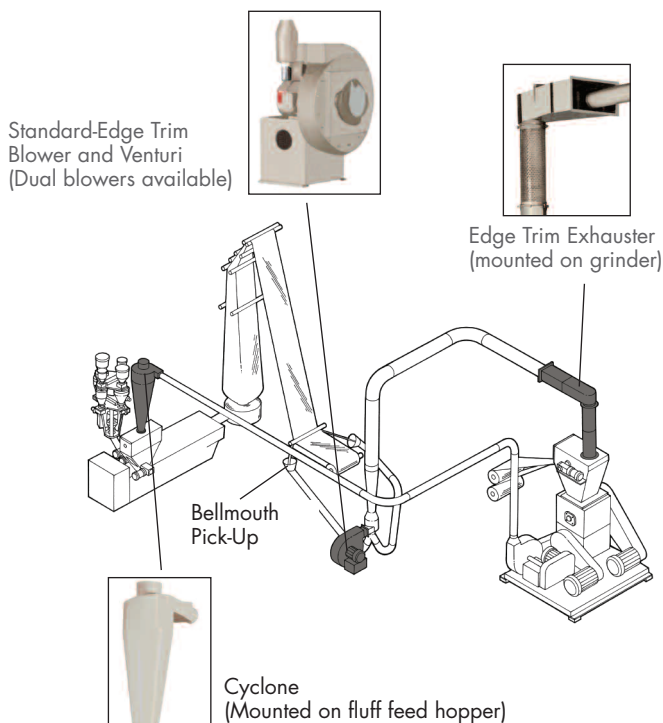
Cumberland edge trim conveying systems are designed to convey edge trim to the grinder. An additional blower mounted on the grinder conveys fluff back to the extruder.

Standard Options Include:

- Dual inlet edge trim air exhauster
- Manifold with additional bellmouth pickup for center trims
- Sound enclosure for blower

A Typical System Includes:

- Two bellmouth pick-ups for the edge trim
- One Y-tube to connect to the venturi inlet on the blower
- Trim blower
- Edge trim air exhauster (mounted on grinder)
- Fluff conveying blower (included with grinder)
- Cyclone (mounted on fluff feed hopper)



Feed Roll Assembly Features

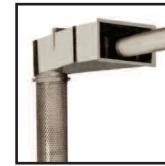
- Exclusive feed roll undercut knurl design reduces wear
- DC drive with heavy-duty hollow shaft gearbox
- Safety switches on all accessible components
- Angled feed roll geometry helps feed thicker films
- Upper and lower rolls are driven
- "Doctor" blade on lower roll reduces wrapping
- Hinged feed roll box
- Pneumatic cylinders on models 20 and 30 to open feed roll assembly

Available Options

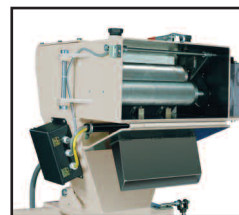
- Carbide-coated blades
- Flywheel for heavy hand feeding of scrap
- Sound enclosure
- Remote mount control panel
- Special voltage



Hand-feed chute for loose scrap



Adjustable edge trim air exhauster



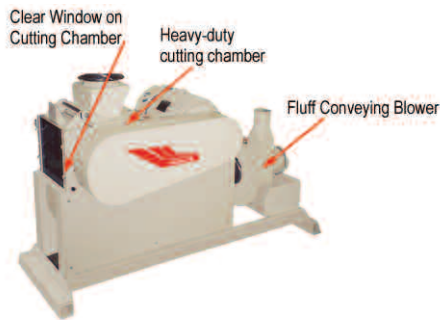
Feed Rolls For Scrap Film Roll Stock

Cumberland Film Grinders

Cumberland film grinders are designed to handle a wide range of materials and can be equipped with our exclusive feed roll assemblies for automatic feeding of scrap roll stock.

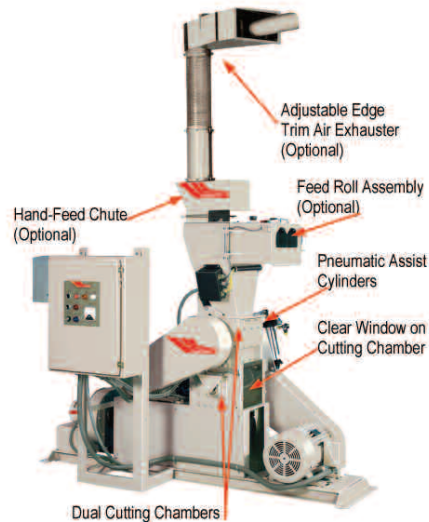
Each Unit Includes the Following:

- Outboard-mounted bearings with shaft scraper blades eliminate failure caused by material contamination
- Machined plate cutting chambers
- High-shear, slant angle scissor cut design provides trouble-free operation
- Heavy-duty single or dual cutting chamber
- Clear window on the cutting chamber allows for constant process monitoring.



Model GR-2-812-20 Dual Chamber Film Grinder (with optional feed roll assembly and pneumatic assist)

Cumberland's high bulk density film grinders feature high-performance dual-stage design. Scrap film first passes through a primary upper cutting chamber, then through a secondary lower chamber with a smaller screen. The grinders provide high throughputs and higher bulk densities with less heat generation and screen blinding, excellent for tacky, heat-sensitive materials, like LLDPE and PVC. The grinder design permits very high line speed edge trim, since the top chamber stays evacuated to enable efficient ingestion of materials...excellent for high-speed cast film lines.



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