

Rayeman Bulk Densification



Redefining Grain Densification Systems



INTRODUCTION

Rayeman Elements' ground-breaking, patented Bulk Densification technology and equipment provides the opportunity to bulk densify nearly any product introduced, reducing the footprint of the material by up to 70%, forming a cube, pellet, or log for feed, renewable and/or alternative energy products, or shipping purposes.

Rayeman Bulk Densification Lines feature unique sets of counter-rotating, intermeshing screws that act as a positive displacement pump when rotated inside a temperature controlled, enclosed barrel.

The screws compress and release the material several hundred times from the beginning to the end of each zone, conditioning the grain into a compressible state, preparing it for densification.

The compressed material is forced under pressure into a die plate that distributes the compressed material into multiple shaping holes, which forms and extrudes the cube, pellet, or log as it proceeds through a closed loop cooling chamber, before being cut to an adjustable size.

PERFORMANCE

This system will demonstrate the effectiveness of producing cubes, pellets or logs maintaining the highest nutritional properties in the grain, with dimensional stability during shipping, and less than 2% loss from storage to truck.

FLEXIBILITY

Rayeman Bulk Densification systems are designed to be flexible, dependent on materials and desired output.

- Cattle Feed
- Processing 2 tons/day – 1,552 tons/day
- Wood and other Renewable or Alternative Energy products
- Overseas and Long-Distance Shipping

BENEFITS

- Can be hooked up to the Rayeman Compression Dryer, or to your existing dryer system
- Opportunity to diversify your revenue stream
- Improves and expands current market segments
- Creates new industries

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Bulk Densification for Cattle Feed

- Process 100% distillers or brewers’ grain with no added fillers or binders
- Mechanical heating through shearing and rotation of the screws and three-dimensional pressure creates a cube or pellet which does not fall apart during auguring or shipping to the rancher
- The resulting cube, pellet, or log product maintains the highest nutritional properties in the grain, dimensional stability during shipping, and less than 2% loss from manufacture to truck

Bulk Densification for Wood and other Renewable or Alternative Energy Products

- Pellets or briquettes are produced from multiple materials including, but not limited to, dried/undried woods, multiple feedstocks, or residuals left in the field after harvest
- Resulting in products that are water-resistant, non-abrasive, cleaner burning and more economical for shipping
- Offering significant applications in:
 - coal fire energy plants for electric power generation
 - wood pellet burning furnaces for home heating
 - boiler systems for hot water/steam in manufacturing plants

Bulk Densification for Overseas and Long-Distance Shipping

- Bulk densified materials are moisture resistant, easier to handle and allow for a greater weight by volume
 - Assure considerably less loss or rejection upon delivery
 - Making it extremely economical

Specifications – presented as examples

| Type of Bulk Densifier | Rayeman Bulk Densifier with Screws | |
|------------------------|--|---|
| Screw Diameter | 160mm | 235mm |
| Type of Material | DDGS | DDGS |
| Output Capacity | 3 tons/hr., 72 tons/day | 10 tons/hr., 240 tons/day |
| Electrical Requirement | 480v to 460v 60Hz Three phase – 1,600 amps | 480v to 460v 60Hz Three phase – 2,000 amps |
| System Mounting | Extruder, Die System, and Feed Hopper - mounted on the floor of your facility Centralized Water Chiller - mounted outside facility on cement pad and plumbed into the plant | |

At Rayeman Elements, we strive to be the leaders of the industry not only for our technology and innovations, but for our dedication and commitment to you. Rayeman Bulk Densification Systems are customizable to meet your specific product and capacity. Please contact us for more information, and to discuss your specific project requirements.

Rayeman Elements, Inc.
 320 Gateway Drive
 Berthoud, CO 80513

Phone: +1 (970) 344-4776
 Email: info@rayemanelements.com
www.rayemanelements.com