

The Benefits of Bale Standardization and Packaging

Ross Rutherford
Lummus Corporation
Lubbock, Texas, U.S.A.

Introduction

One of the most universally-recognized symbols of the cotton industry is the bale of cotton. Through the years, the appearance and characteristics of this package have evolved, but its function is still the same: to package the lint cotton in such a way as to facilitate efficient transport and to protect the fiber from contamination.

Around the world, variations in bale dimensions, bale weights, bale packaging materials/methods have precipitated this forum today regarding the move toward a standardized bale package for cotton. To be sure, this is not something that will happen overnight, as there are many considerations to be made. It is a move that should certainly improve cotton's competitiveness.

Background

To move toward bale standardization, one must be mindful of the standards which currently exist in the industry. Bale dimensions definitions for ISO Standard 8115-1986 (E) are shown in Figure 1, and the range of dimensions with respective densities in SI and English units, respectively, are shown in Table 1.

Additionally, the Joint Cotton Industry Bale Packaging Committee (JCIPBC) of the National Cotton Council maintains recommended dimensional information for the universal density bale. This information can be found in Table 2.

Considerations

As one of the major manufacturers of baling presses, Lummus offers two box sizes/press types for the cotton industry: 20"x54" universal density (28 lb/ft³) and 20"x41" high density (32 lb/ft³). Each is available in down-packing and up-packing models. The range of throughput capacities adds another level of complexity to these. Therefore, it is a challenge for us to maintain the different product lines.

In areas where the smaller weight bales are produced, a major item to bear in mind is the total throughput capacity of the press. As ginning machinery is designed to process a given amount of pounds of seed cotton (or lint) per hour, smaller bales result in the requirement of higher numbers of bales being produced per hour (i.e., more bags, more ties, more press cycles), even though the total pounds of cotton produced remains the same as that of a similarly-equipped gin plant processing either universal density or high density bales.

Fluctuations in bale thickness (dimension H), which causes variations in bale densities, can also result in inconsistent opening performance at the textile mill. Variations in types of bagging and tie material also can cause problems with bale warehousing, lead to potential lint contamination, and a host of other problems.

Summary

The multitude of points discussed in this presentation should not be considered as problems, but, rather, opportunities. Through the application of sound science, and with the cooperative effort from all the facets of the cotton industry, a more standardized bale package will eventually reach the market. That is not to say that it will be easy, but for the long-term success of cotton in the world, it is a concept that must begin the journey from an ideal to reality.

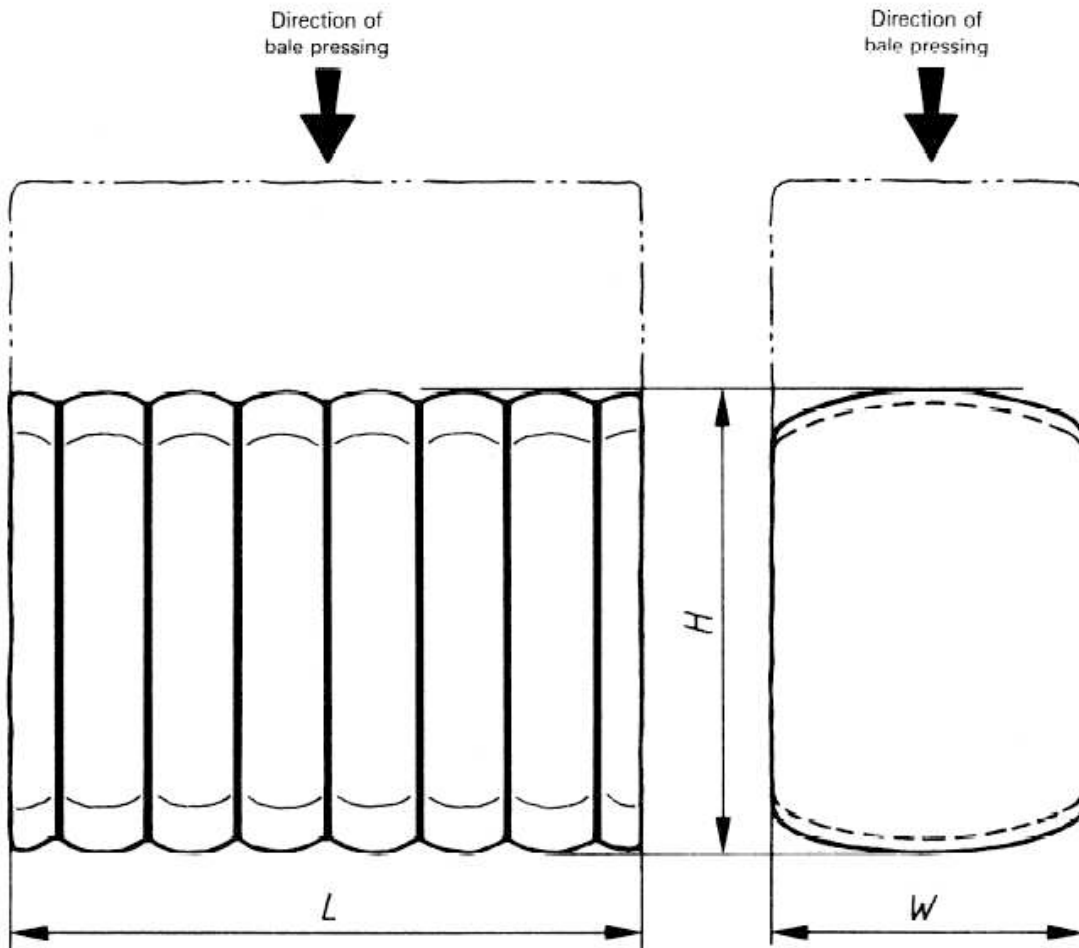


Figure 1. Definition of bale dimensions from ISO Standard 8115-1986 (E).

Table 1. Bale dimensions and densities from ISO Standard 8115-1986 (E).

L (mm)	W (mm)	H (mm)	Density (kg/m ³)	Weight (kg)
1 060	530	780	450	197
1 060	530	950	360	192
1 400	530	700	450	234
1 400	530	900	360	240

L (in)	W (in)	H (in)	Density (lb/ft ³)	Weight (lbs)
42	21	31	28	434
42	21	37	22	423
55	21	28	28	514
55	21	35	22	529

Table 2. Universal density bale recommendations of the Joint Cotton Industry Bale Packaging Committee of the National Cotton Council of America.

Approximate Values	Units	
	English	SI
Net Weight	500 lbs.	226.8 kg
Length	54-55 inches	1.37-1.40 m
Width	20-21 inches	0.51-.53 m
Average Bulge Thickness	33 inches (or less)	0.84 m (or less)
Volume	17 ft ³	0.48 m ³
Density	28 lbs./ft ³	472 kg/m ³

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The Cotton Bale



Introduction

- Variety of bales sizes and weights
- ISO Standard 8115-1986 (E)
- Joint Cotton Industry Bale Packaging Committee (JCIBPC)

Figure 1. Definition of bale dimensions from ISO Standard 8115-1986 (E)

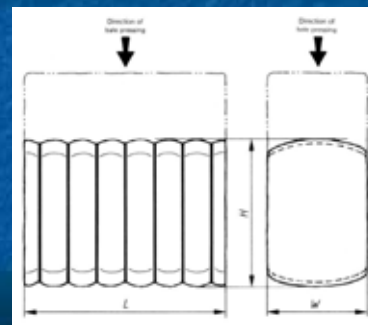


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Considerations

- Variety of press box sizes/models
- Capacity affected by bale size
- Smaller bales at a given ginning capacity mandates higher press throughput
- Fluctuations in densities between bales cause inconsistent opening



Summary

