



BAJAJ STEEL INDUSTRIES LIMITED

IMAMBADA ROAD, NAGPUR- 440 018. INDIA
Tel: +91-712-272 0071 ~ 80 Fax: +91-712-272 8050 / 272 3068
email : bsi@bajajngp.com website : www.bajajngp.com "

"

The Benefits of Standardized Bale sizes and Packaging

**(A Paper presented at the First Breakout Session on Monday September 26, 2005
during 64th Plenary Meeting of the ICAC in Liverpool**

**by Mr. M. K. Sharma President –
Bajaj Steel Industries Limited, Nagpur 440 018 India)**

"

Preface

The long range objective of the world cotton industry is to standardize regulations for cotton trade, units of measure and quality standards to increase transparency leading to increased trade.

The theme of International Cotton Advisory Committee (ICAC) Plenary Meeting being held at Liverpool from September 25 – 29, 2005 “Industry Standardization – the key to Trade Growth” & its focus on standardization is aiming at providing the benefits of standardization to cotton industry at the earliest by speedy implementation of standardization process.

The cotton bales being the core of all cotton trade, a uniform cotton bale with standardization of density, weight, size, ties, bagging & labeling is the most important aspect.

With the “Multi Fiber Agreement” coming in effect from January 1, 2005 the cotton industry worldwide is poised for restructuring and now is the appropriate time for the standardization of cotton bales. If implemented worldwide shall immensely benefit cotton trade by enhanced opportunities for expanded trade in cotton, a healthy cotton economy and higher competitiveness relative to competing fibers.

The Rationalized Metric System / Systeme Internationale d’ Unites (SI) has now been accepted by all the countries for use as unit of measure for all quantitative requirements due to the advantages and uniformity required to be achieved, the cotton trade should also standardized all units of measure in The Rationalized Metric System (SI).

Historical Background

As rightly mentioned by Hon’ble Mr. Terry Townsend – Executive Director ICAC in his write up published in CI World Report – September 2005 as:

“The world cotton industry developed over the centuries as a set of independent national industries, often with parochial rules and trade procedures, units of measure and domestic quality standards. Bale sizes and density vary from country to country. China (Mainland) produces both 80 kilogram and 225 kilogram bales. Norms include 170 – kilogram bales in South Asia, 400-pounds bales in East Africa, 480- pound bales in U.S., 227 – Kilogram bales in Australia and 720 –pound bales in Egypt. Quality standards vary from country to country, including the Universal Cotton Standards developed by USDA and a multiplicity of national standards maintained by national organizations in many producing countries. Trade rules vary, with some regions providing bale-by-bale rejection and some not, some providing for settlement of claims based on value differences and some requiring replacement. An unintended result of the lack of standardization of rules is increased cost and reduced efficiency in the world cotton industry, leading to reduced competitiveness for the industry relative to competing fibers”.

Contd. ...2.

"



BAJAJ STEEL INDUSTRIES LIMITED
IMAMBADA ROAD, NAGPUR- 440 018. INDIA
Tel: +91-712-272 0071 ~ 80 Fax: +91-712-272 8050 / 272 3068
email : bsi@bajajngp.com website : www.bajajngp.com "





The standardization of the cotton bale has been a complex problem. The matter has been discussed by the various forums for a long time by now and significant progress has also been made towards standardization still a lot needs to be done to achieve total uniformity of cotton bales throughout the world.

The survey presented during the 26th Plenary meeting of ICAC held in 1967 and updated at the time of 35th Plenary meeting in 1977 shows that in the major part of the world the average cotton bale density ranges between 360 - 500 Kilos / cubic meter.

The matter about standardization of cotton bales was discussed in depth by the Joint Cotton Committee of International Federation of Cotton and Allied Textile Industries (IFCATI) in Barcelona in October, 1971 based on letters received from M/s Lummus Industries Inc. USA, and M/s Lindemann of Düsseldorf Germany and the observations made are fully relevant and based on well considered facts in respect of dimensions, weight, density, type of covering, bale hoops, tare, marking and sampling of cotton baling presses.

The process of standardization of cotton bale is complex and time taking which is evident from the experience in USA however the progress made in USA is very interesting and encouraging for other cotton producing countries in the world. It has taken almost 35 years in USA to shift from flat bales (13 lb / ft³) to universal density bales (28 lb / ft.³) further to increase the percentage of universal density bales from 50% to 100% has taken about 20 years. A table given below will show the trend.

"

Table 2 Year wise increase in percentage of UD bales in the United States

"

Year	1984	1985	1986	1987	1998	2005
% of total bales compressed to universal density	50	65	70	80	95	100

"

Up till now a significant progress has taken place in other countries of the world also towards standardization and a time has come where the matter should be finally discussed and all the cooperation of various agencies should be taken to implement the standardization process for cotton bales to provide the benefits of cotton bale standardization to cotton industry.

The Benefits of Standardized Bale Sizes and Packaging

Predominantly the following benefits may be derived from standardized sizes and packaging of cotton bales:

- Uniformity in overall global cotton merchandizing
- Transparency and better understanding of transactions.
- Standardization of transportation at optimum cost.
- Benefits of mechanical handling in uniform manner.

"



- International bar coding possible

Contd. ..3.

3

- Standard procedure for sampling
- Standardization of warehousing practices to achieve optimum cost benefit.
- Standardization of automated bale opening equipments.
- Better fiber quality and control over fiber parameters.
- Standardization of cotton baling presses manufacturing at lower capital cost.
- Competitive advantage over Synthetic fibers.
- Enhanced opportunities for expanded trade in cotton
- Healthy cotton economy etc.

However there are several obstacles and complexities in deciding the standardization of cotton bales and its packaging material which needs to be considered and standards to be finalized for recommendation to various implementing agencies to pave the path for standardization process and to derive the benefits of standardization of cotton bales and packaging.

Obstacles in finalization and acceptance of standardized cotton bales

The following statement of M/s Lummus Industries USA in their letter to IFCATI in 1977 is most relevant even today

“The Main Obstacles Barring the Way to the Introduction of an Internationally Accepted Standardized Cotton Bale - As we see it, there are many obstacles in the path of a standardized cotton bale. Probably the biggest obstacle is the fact that the parties who are involved in producing, handling, and consuming the cotton bale represent such a large and diverse group. Each segment of the group is generally unfamiliar with the other segments. In addition, each of these segments has established practices involving large capital expenditures. For these reasons a tremendous inertia exists that makes change of even the small sort a monumental task. For example, in the US alone it has been discussed for at least 50 years that improvements be made in the American cotton bale. Only now with cotton in a death struggle with synthetic fibers are steps being taken to change established practices in producing the American cotton bale. Many, many private and governmental agencies are involved in these proposed changes. It is still doubtful that significant changes will be made. The conditions that affect the US cotton bale are considerably different from those in other countries and it would seem a gigantic task to workout a compromise among all the countries in the world”.

However some progress has been made since the time when above observations were made and now it is the right time to press for the finalization of standards after discussing the issues involved and to take up the matter with implementing agencies for speedy implementation.

Contd. ..4.



"

4

The principal issues involved as per our understanding as largest manufacturer of cotton ginning and pressing equipments in India, the third largest cotton producing country in the world are discussed below:

1. Dimensions

The comments of M/s. Lummus Corporation as per their letter to IFCATI in respect of dimensions are as under:

"We manufacture presses producing bale width and length dimensions of approximately 20" x 40" which meet the requirements set forth by the IFCATI. This press is capable of producing bales up to 20 bales an hour with no difficulty. For higher capabilities it is desirable but not absolutely necessary that a press with approximately 20" x 54" be used. However, if other segments of the industry find the 2 to 1 length to width ratio desirable we can see no serious difficulty in producing bales of this proportion".

The size of 1020 mm x 510 mm for cotton bale press box dimensions was also recommended by M/s Lindemann of Germany.

Finally the ISO 8115 – 1986 International Standard for Cotton Bales Dimensions & Density has now been finalized as under:

L mm	W mm	H mm	Density Kg/ m ³
1060	530	780 to 950	360 to 450
1400	530	700 to 900	

"

We however would prefer the dimensions of cotton bale as 1060 mm x 530 mm x 780 mm as against dimensions of 1400 mm x 530 mm x 700-900 mm being more suitable for standardization in all respect. In view of better cost efficiency and better space utilization in standard 12 meter long containers.

2. Transportation

Historically the transportation has been considered on the basis of local transportation truck sizes within the country of cotton production and containers for export outside cotton producing countries. However now the process of containerization has come a long way and domestic movement as well as export movement may be moved in containers, further it is not practical to consider the different sizes of local trucks for standardization hence the standardization should be done considering standard 12 meter long containers for transportation purposes.

3. Density

"The success of bale packaging system for lint cotton largely depends on density. Bales must be packaged at a density satisfactory to the consumer of the cotton lint and to the transportation system" - W. Stanley Anthony

The density as standardized by ISO 8115-1986 is 360 – 450 Kgs/m³. This range appears to be bit compromising thus in our opinion needs to be reconsidered for some change on following grounds:

Contd. ...5.

"



"

5

- i. The density range of 360–450 Kgs/ m³ is satisfactory to cotton consuming mills however they have no adverse opinion about slightly higher density of cotton bales around 500 Kgs/ m³.
- ii. In view of maximum space utilization in standard 12 meter container for transportation of the bales in size 1060 mm (L) x 530 mm (W) x 780 mm (H) having weight of 220 Kgs., the density of 500 Kgs/m³ is most suitable.

In view of above we recommend that the standard density should be fixed at 500 Kgs/ m³ ± 5%.

4. Weight of bales

The standard weight of the bale should be fixed at 220 Kgs. in size 1060 mm (L) x 530 mm (W) x 780 mm (H). For the benefits of transportation within the prescribed weight to be loaded in standard 12 meter container. The fractions lower than 10 should be avoided in fixation of the standards and the standard bale weight should be fixed 220 Kgs instead of 225 Kgs.

5. Sampling

The automatic samplers have since been developed and the sampling should be done as per requirement by using automatic samplers.

6. Bale packaging materials

The specifications for packaging materials for cotton bales have already been standardized by the Joint Cotton Industry Bale Packaging Committee in 1992 and National Cotton Council of America have published the specifications for various alternative bale packing materials in our opinion following packing material should be standardized for cotton bales based on these specifications.

- I. Ties - Wire ties should be used as against other alternatives being most suitable.
- II. Cotton bags of standard size & standard specifications should be uniformly used preferably with PP / PE outer cover.
- III. The bales should be fully covered from all sides

7. Marking

Standard format for information required to be printed should be standardized for international bar coding system and the same should be implemented uniformly.

8. Moisture content

The changes in moisture content significantly influence the bale weight, density, compression force, price considerations etc. therefore standard should be fixed in respect of moisture contents of the packed bales with only permissible limits.

9. Unit of measure

All units of measures should be standardized in metric system (SI).

Contd. ..6.

"



10. Bale Stacking

For piling purposes only 4 sides of the bale are available and the recommendations that the bale length and bale width ratio of 2:1 are practically available in size 1060 mm x 530 mm. If the bales are stacked from the other 2 sides i.e. height, the stress on the bale tie will be higher and with the increased use of automatic bale piling devices such as forklifts the standard for stacking in the container should be fixed for horizontally stacking the bales. This will also facilitate proper centre of gravity for stacking.

If the standards are fixed considering the various facts as discussed above and various bodies including governments of the cotton producing and consuming countries are pursued to implement the standards, the benefits of the standardized size of cotton bales and packaging will soon be available to cotton industry.

There may be some countries where the standard so fixed are not implemented at desired speed however the standards so finalized will be available for guidance and the same will be implemented as and when the balancing forces come into action.

Conclusions

Based on discussions above we wish to recommend following specifications for standardized cotton bale.

SPECIFICATIONS FOR STANDARD COTTON BALE

Specification	Approximate Value	Remarks
Net weight	220 Kgs	
Length	1060 mm	
Width	530 mm	
Average Bulge Thickness	780 mm	
Density	500 Kilos/m ³	
Bale tie	Wire ties of appropriate dimensions as per specifications fixed by JCIBPC	
Bale coverage	Fully covered from all sides by standard cotton bag	Preferably with PP/PE outer cover.
Marking	Standard label with international bar code	

We now hope that ICAC shall take lead to decide the standardized size of cotton bales and packaging in all respects and take steps to convince the world cotton community regarding benefits of use of standardized cotton bales and packaging.

The standardized cotton bale and packaging has to be put as a foreground to make consensus immediately at least among major cotton growing countries viz U.S.A., China, India, Pakistan, Uzbekistan, Australia etc. and the Governments of the cotton growing countries to ensure all new cotton press machines likely to be installed in future should produce standard bales.
