

CIRCOT- Bajaj Cotton Pre-cleaner

(For Improved Ginning Performance and Lint Quality)



Developed by

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PREAMBLE

Before 2,000 AD, Indian cottons were considered to be trashy despite being handpicked and being contaminated by wide range of impurities gathered during post-harvest handling till it reaches the spinning mills. The cotton is sold in the market based on its grade. The trash content in the cotton is the predominant parameter to decide the grade and value of the cotton. For a reasonable price in the market, the baled cotton should contain minimal trash and free from contamination. Due to high trash content in Indian cotton, Indian spinners used to prefer the imported cotton. Hence the need for indigenous pre-cleaner was felt to improve the quality of the Indian cotton. Pre-cleaning removes the trash content from the seed cotton so as to improve the ginning performance and lint quality. The removal of trash content reduces wear and tear of ginning parts and machinery leading to improvement in ginning efficiency. To cater the needs of the ginning industry, CIRCOT has designed and developed inclined and horizontal pre-cleaners, which is an import substitute.

ICAR-CIRCOT'S TECHNOLOGY

CIRCOT-Bajaj pre-cleaner consists of series of spiked cylinders, usually 4-6 in number arranged in an inclined manner that agitate and convey the seed cotton across cleaning surfaces. The cotton is fed uniformly along the length of the bottom most spiked cylinder. The cylinders are made to rotate at a definite speed in the anticlockwise direction. The rotational motion of the cylinders draws the cotton inside and agitates it across the grid surfaces and thereafter conveys the seed cotton across the cleaning surfaces containing small openings or slots underneath each cylinder. Foreign matter is dislodged from the cotton by the agitating and

scrubbing action of the cylinders. The separated trash falls through the grids and gets conveyed to a trash chamber for disposal with the help of screw conveyor.

Salient technical specifications:

Number of cylinders	: 4 - 6
Width	: 1200 mm - 1800 mm
Capacity	: 3500 - 6000 kg/h
Power requirement	: 0.98 - 5.59 kW

Performance Results

Cleaning efficiency: 30 - 40%

The technology was transferred to M/s. Bajaj Steel Industries Ltd, Nagpur in 1999 to manufacture the pre-cleaners named as CIRCOT–Bajaj pre-cleaner. This technology gave impetus to M/s. Bajaj Steel Industries Ltd, Nagpur to expand their business for manufacturing of pre-cleaning and automation system from mere manufacturing of double roller gins. CIRCOT–Bajaj pre-cleaner is an import substitute and results in improvement of ginning performance as well as lint quality in terms of reduction in contamination and increased bale value.

IMPACT OF THE TECHNOLOGY

As of now, more than 1000 pre-cleaners are being used in ginning industries in India as well as abroad. Technology Mission on Cotton MM-IV was launched in the year 2000 for the modernization of ginning and pressing industries in India. Under this scheme the CIRCOT–Bajaj Pre-cleaner was identified as the foremost and essential machine for modernization. Due to advent of this technology, the

ginning scenario in the whole country has changed dramatically. The trash content in Indian cotton bales has come down to 2%. Use of pre-cleaner was the single most important factor for increase in export of Indian cottons. Increment in the earnings of ginning industry through the use of this technology by the way of reduction in trash content lead to bale value improvement of around Rs 2,500 crores. M/s. Bajaj Steel Industries, Nagpur diversified their original business based on this technology. CIRCOT licensed this technology in 1999 to Dr. M. K. Sharma, currently the Whole Time Director & CEO, of M/s. Bajaj Steel Industries Ltd, Nagpur for production on a commercial scale. Annually on an average of 60 to 70 pre-cleaning machines are sold by this company.



CONCLUSION

CIRCOT-BAJAJ Pre-cleaner removes trashes from seed cotton resulting in improvement in ginning performance and lint quality. Due to the improved grade of cotton, ginners fetch premium rates for their cotton, which in turn benefits the cotton growing farmers. This technology has earned the name for Indian cotton in the international market as evidenced from the increase in export of cotton bales.

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