

CottonSorter



Detection and removal of contaminants in raw cotton

Barco is proud to introduce the Cotton Sorter, a real time system for the detection and removal of contaminants from raw cotton in the blow line. All unwanted material that differs from the cotton throughput is detected by ultra-fast CCD cameras and removed by means of high speed air guns.

It is very easy to install the Cotton Sorter in an existing opening line. The system is installed in the pipeline that transports the cotton tufts from the bale opener. The cotton flow through the machine is straight. No need to add fan capacity to elevate the cotton and drop it through the inspection zone.

The Cotton Sorter provides the means to safeguard a high and consistent quality level, regardless of operator practices. The early removal of contaminants results in an improved and consistent quality level, less customer complaints and a higher efficiency on OE machines and winders due to a lower number of foreign fiber cuts by the yarn clearers.

BARCO

Visibly yours

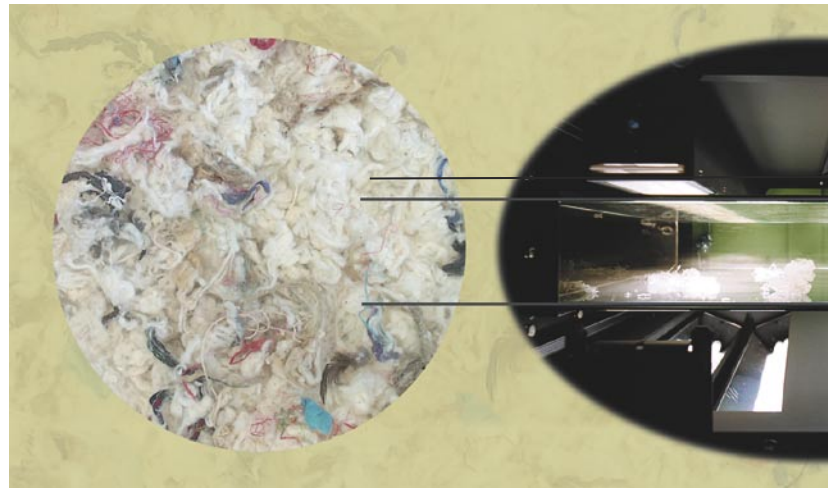
Working principle

In the Cotton Sorter, the material passes through a transparent tunnel. In the inspection zone, the cotton is diffusely illuminated.

The individual tufts are observed by means of four ultra-fast high resolution CCD line scan cameras. Simultaneous image acquisition from both sides enhances the detection capability.

Image processing includes correction for non-uniform lighting, contrast enhancement and feature extraction. Defects that are of a different color than the raw cotton and are of a certain size, are detected in the cotton flow.

In order to allow exact timing between contaminant detection and activation of the downstream ejection mechanism, the speed of the cotton flow is continuously measured. After the corresponding delay, the appropriate high speed air guns are activated downstream.



Specifications

Enclosure:
sealed for dust protection temperature controlled touch screen operator's panel

Camera:
CCD line scan - 2592 pixels - 1450 lines per second - 8 bit or 256 color levels - 4 cameras per sorter

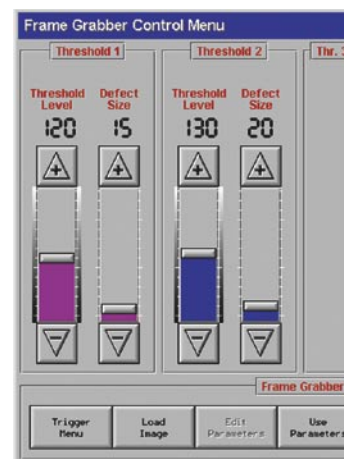
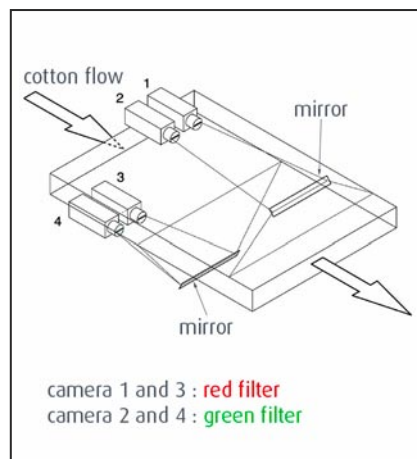
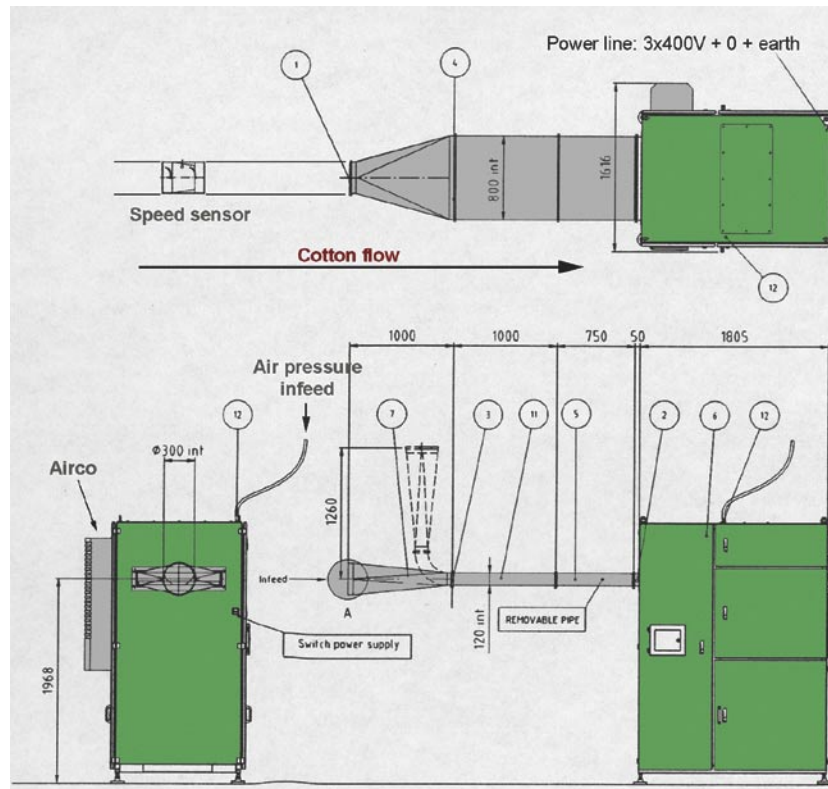
Illumination:
high frequency light tube - 16 light tubes per sorter

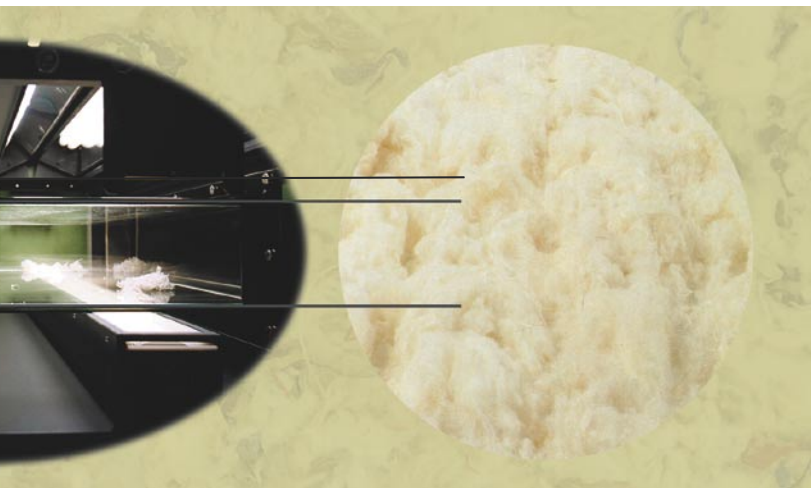
Ejection:
20 air guns, 90 psi or 6 bar, 5 mu filtered dry air

Power:
3x400 V (50/60 Hz), 2 kW power consumption

Weight:
1400 kg or 3960 lbs

Capacity:
1200 kg/hour. Dual Feed Sorter
2x500 kg/hour is also available.



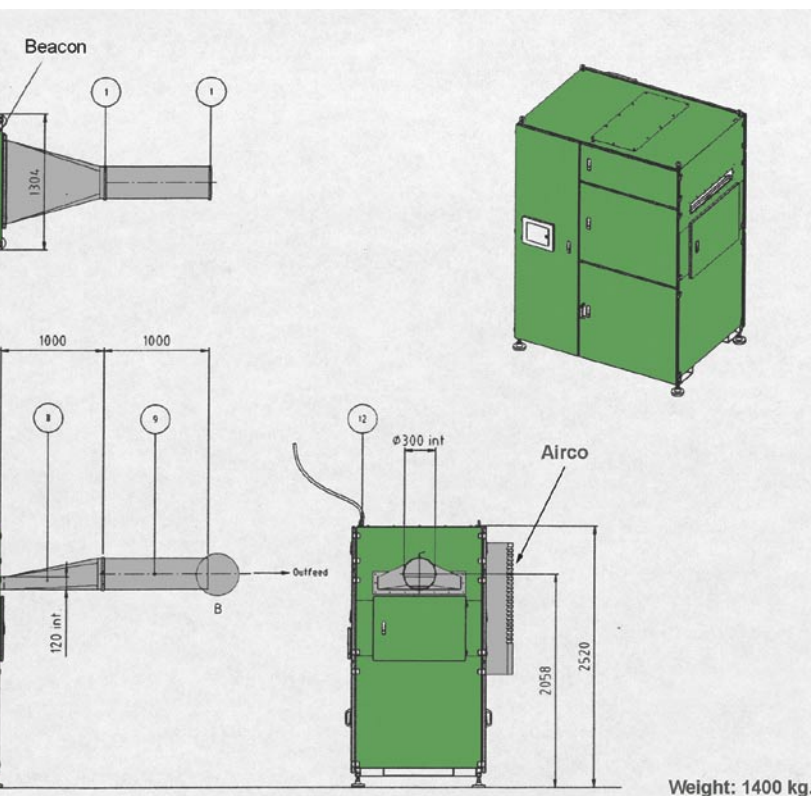


Operator interface

The Cotton Sorter comes with a touch screen based operator's console, allowing comfortable and easy machine set-up, operation and follow up.

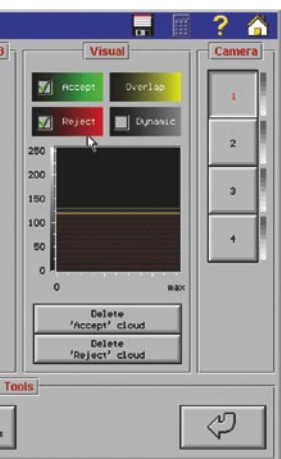
Contaminants to be ejected are described as a deviation in color and size. The contaminant size is defined as a combination of contaminant width (number of pixels) and contaminant length (number of scan lines). Tolerances in color are defined by means of threshold levels (limits). Setting a low level results in objects with a color value below this limit being identified as a contaminant.

The result of the scanning by the cameras is shown on the "camera display menu". On the horizontal X-axis, the number of camera pixels is indicated whereas the Y-axis displays the color level. A value of zero corresponds with black, whereas 255 means white. It is obvious that the flow of normal cotton is recognized as close to the white level.



Benefits

- Upgrade possibilities for low quality cotton bales
- Evaluation of cotton suppliers
- Less customer complaints
- Independent of operator's goodwill
- Higher efficiency on OE machines and winders because of a lower number of foreign fiber cuts by the yarn clearers
- Low cost of installation due to flexible system set-up
- Low energy consumption
- No moving parts resulting in mini-mized maintenance
- Easy calibration, once a week (10 seconds with stopped cotton flow)

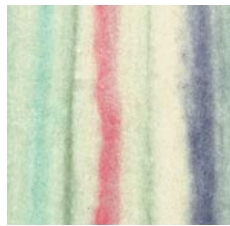


A total solution to fight contamination in spinning mills



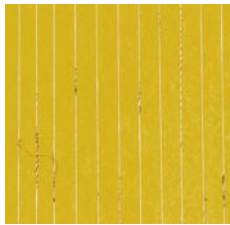
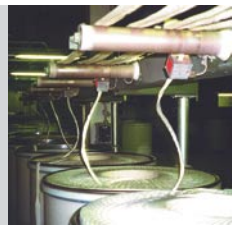
In opening lines - **CottonSorter**

The Cotton Sorter RX-CS is a real time system for detection and removal of contaminants in raw cotton. All unwanted material that differs from the cotton throughput will be detected by ultra-fast CCD cameras and removed by a special pneumatic ejection unit.



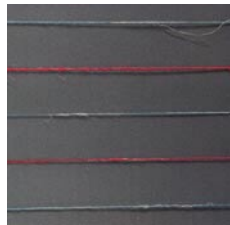
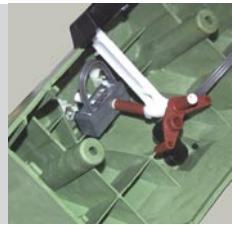
on draw frames - **SliverWatch**

This detection system is installed in the creel of draw frames handling the first step drawing. The purpose is to stop the draw frame if a contaminated sliver is detected, so that the operator can eliminate the contamination. This avoids that second step drawing and spinning spreads the contamination over many meters of yarn.



on Open-End spinning frames - **ABS**

The ABS detector is installed on the yarn withdrawal tube in the spin box. ABS can be installed on O.E. machines regardless the presence of whatever type of yarn clearer. With ABS the detector simply comes as an add-on, replacing the original yarn withdrawal tube with an "intelligent" one. This way, the original investment in yarn clearing is safeguarded.



on Open-End spinning frames - **Polypropylene**

The Polypropylene detector is added to the BarcoProfile® detector in such a way that the yarn barely touches the PP sensing head. The sensing head detects colored, white and colorless Polypropylene contamination in the yarn.



on winders - **YarnMaster**

The YarnMaster 900 eliminates yarn defects as well as foreign fibers and reports the events on-line according to international standards, being: thick and thin places, IPI values, splices, yarn count deviations, imperfections, foreign fibers.



Integration in the BARCO SpinMaster system

All Barco and Loepfe detector systems and sensors can be integrated in Barco's SpinMaster plant wide monitoring system. With SpinMaster, the whole production process can be monitored starting from opening lines to draw frames, flyers, ring frames, OE machines, winders and twisters. The SpinMaster system also allows the connection of production machines equipped with other (non-Barco) yarn quality detection or clearer systems.

BarcoVision
Th. Sevenslaan 106
B-8500 Kortrijk
BELGIUM
Tel (intl) 32 56 26 26 11
Fax (intl) 32 56 26 26 90
e-mail: sales.bv@barco.com

BARCO SEDO GmbH
Neuwies 1
D-35794 Mengerskirchen
GERMANY
Tel (intl) 49 64 76310
Fax (intl) 49 64 763131

BARCO - Loepfe s.r.l.
Via El Alamein, 11/C
I - 22100 Como
ITALY
Tel (intl) 39 031 331231
Fax (intl) 39 031 331232

BarcoVision LTD
Philips Road
Whitebirk Industrial Estate
Blackburn, Lancashire BB1 5SN UK
Tel (intl) 44 1254 66 22 44
Fax (intl) 44 1254 58 25 95

BarcoVision LLC
4420 Taggart Creek Road
Suite 101
Charlotte, NC 28208
USA
Tel (intl) 1 704 392 93 71
Fax (intl) 1 704 399 55 88