

CASE HISTORY BENETTON GROUP Spa (now BENIND Spa)

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TYPE OF BUSINESS: Clothes

PROBLEM:

In 1997 the Benetton Group, now Benind Spa, who had been our customers for some time, asked us to design a taping machine to close and tape all types of corrugated cardboard containers (known as "high boxes" in the clothing industry) that protect the garments (coats, jackets, skirts, etc) during transportation to the outlets. In order to make the packaging safe against infraction, we were asked to use, in addition to the strips of tape used to close the boxes, metal staples (in the first instance), then hot-melt applied between the flaps.

TRANSFERRED DATA:

The following data was transmitted:

- 22 box formats in the following dimensions:
- Width: Min. 300 mm; Max. 750mm
- Length: Min. 300 mm; Max. 700mm
- Height: Min. 300 mm; Max. 1800mm
- Capacity: 8/10 boxes/minute
- H rollers: 500mm

PROPOSED SOLUTION:

Based on our experience, strengthened and supported by many analogue solutions already adopted in various sectors, we found that reinforced gummed paper (reliable, safe and mechanically resistant) was the ideal solution to the customer's request. Furthermore, there were already 3 gummed paper machines running in the "hanging garments" department of the company, which was irrefutable evidence that gave the Client the certainty to make a risk free choice.

PROCESS DEFINITION:

This defines:

- Upper taping: 180 mm wide reinforced gummed tape (need to conceal and therefore cover the "pockets" with the tape, in which are housed the supports of the support batons of the hanger);
- Height of the upper and lower vertical sections: 130 mm;
- Lower taping: 80 mm wide reinforced gummed tape;
- Auto-dimensioning on the box format to be closed and taped, with a "random" arrival;
- Fully automatic machine with upper flap closure and simultaneous taping above and below; We received the order in 1999.

TECHNICAL SPECIFICATIONS:

The technical solutions engineered and adopted in building the machine, aimed at satisfying the above mentioned requirements, were special and innovative for a taping machine:

- 1) Vertical movement with brushless motor, encoder and torque limiting devices to guarantee speed and linearity of the movements with travel of 1500 mm at a speed of 30 m/1';
- 2) Management of the brushless motor by means of servo-drives and axis management cars;
- 3) Horizontal movement with pneumatic cylinders and hydraulic speed regulator;
- 4) Dynamic limitation of the side flaps with honeycomb belts driven with dc variable speed gearmotors, to

support the box conveyor belts and guarantee smooth movement of the box during processing by holding it on the top and bottom of the sides when advancing;

5) Upper reel support rotating through 90° via a dc gearmotor to ease the loading of the 180 mm wide reels of paper, positioning it horizontally;

6) Upper paper reel pneumatic adjustable unwinder;

7) Direct supply of the hydraulic circuits via storage tank equipped with float to manage the mains supply valve;

8) Barcode reader to identify the type of packaging that the machine must perform and data transfer to the programmable logic of the taping machine in order to set the front and side flap closure at the optimum position thereby limiting movements;

9) Automatic reading of the box dimensions if the barcode is incorrectly read and signalling to the operator;

EFFICIENCY:

The machine started work in 2001 and is still running today, to the customer's satisfaction (and above all to the optimum and well trained maintenance engineers), after approximately 2,500,000 work cycles, for 5 days of the week with 2 shifts per day, and often three.