Sorting and Baling Systems for Used Clothing
Valvan in the used clothing business

Valvan started off in this business around 1990 with the design of basic pit presses and single box presses for large bales of used clothing and wipers. The first low cost swivel box presses for export bales came shortly after that.

By 1992, we designed the first automatic feeding and bale evacuation systems for the used clothing presses. Around the same time, the first high speed press for export bales was an immediate success.

In the following years, we started building mutilators for exporting clothes to India and Pakistan and also basic sorting equipment like tables, tilting devices, carts,...

But it was in 1997 that the first major automated sorting plant was designed for high capacity production. With an increasing production cost, more and more customers contacted us for solutions to save on labour and space and to improve the control of their operation. Each project is custom-made in close collaboration with the customer.

By 2001, a next step in the automation of the presses was taken with the implementation of automatic strapping systems for the bales to increase the capacity and save on labour and strapping material cost.

Our ongoing search for new developments led us to the idea of using voice recognition in the sorting process. After building a test installation, we were successful in selling the first speech operated sorting plant in 2002.

In the same year, we invested in state of the art 3D design software in order to optimize the mechanical and electrical design of our installations, based on new materials and developments. This is an ongoing process with the emphasis on performance, reliability and safety.

A further step in the optimisation of the sorting plants was the improvement of the unloading, storing and feeding of unsorted goods. This has always been a time consuming, labour-intensive operation.

As from 2006, we have been successful in designing ways of facilitating this essential part of a sorting operation.

An important part of the clothing is not packed in bales, but in bags. The filling of the bags is again a labour-intensive task that needed to be looked at. In 2007, we built the first automatic bag filling system with integrated weighing system.

Through the success of our customers, we have, in recent years, extended several existing sorting plants to increase production and/or implement newer technologies.

The advances in computer technology allow us to integrate visualisation systems and to offer remote access support to assist our worldwide customers better.

This is not the end of the journey. Valvan’s dynamic team continues its search for new applications or problems that need solving.

Your knowledge of the business combined with our know-how in mechanical and electrical design is the secret to mutual success.
Unloading of raw material from trucks or containers has always been a time-consuming and labor-intensive activity. There are several ways to simplify this operation, depending on the means of transportation, building space and budget.

The transport from raw material to the sorting is fully automated in order to reduce the handling cost, which brings no added value to the sorting. Reducing the transport by lift trucks also means less floor space and less noise in the sorting area. The automation includes a weighing system for incoming material in order to have a detailed overview of the production at any time of the day for each sorter.
**Bag Filling**
The system automates the filling of unsorted or sorted goods into big bags. We design a custom-made system for each bag size, required capacity and space. The system can contain a feeding system, a weighing system and a prepressing unit in order to optimize the loading of the bags.

**Cage Filling**
The system automatically fills cages through a system of conveyor belts and prepresses the goods for optimal loading of the cages, which saves storage space.

**Belt Sorting**
The sorting of goods on a conveyor belt can be useful to allow sorters to open bags and remove certain parts before entering the sorting operation. It can also be used on its own for sorting low capacities or a limited number of categories.
Classic Sorting System

Sort & Throw

The sorters throw ± 85% of the sorted material in a module of 24 to 28 boxes in front of them. These items are evacuated automatically to carts, bins or a second sorting operation. The remaining 15% goes into carts or bins besides or behind the sorter. These items are evacuated manually.

Control system

The custom-made control system allows you to follow up on the production continuously, even without leaving the office. We can create logging files on the production, which you can use in your administration.
The sorters throw ± 85% of the sorted material on a small conveyor belt next to them, while saying the item name in a microphone. The number of items is practically unlimited. These items are evacuated automatically by a conveyor-blower-system.

The remaining 15% goes into carts or bins besides or behind the sorter. These items are evacuated manually.
Second Sorting

The second sorting operation can be very elaborate or very small, depending on the extent of the first sorting operation, the markets, the floor space and the quantity and weight per item. The sorters can sort on floor level into simple carts or from a platform into shafts or boxes with automatic evacuation to the presses.
Feeding to Presses

The feeding from the sorting to the presses can be fully or partially automated. Each proposal is custom-made, depending on the capacity, the space and the budget. The system can consist of moveable conveyor belts, transfer robots, tilting devices, weighing systems, ...
Single Box Press

**Manual Feed**

- **Filling:** Manually through filling doors
- **Pressing force:** 40 tons
- **Motor power:** 7.5 or 11 kW
- **Machine weight:** 5 tons
- **Box size (LxWxH):** 1100 x 700 x 2100 mm
- **Bale size (LxWxH):** 1150 x 730 x 1200 mm
- **Capacity:** 2 to 4 bales/h
- **Bale weight:** 300 to 450 kg
- **# straps:** 7 + 2

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**Single Box Press**

**Single Conveyor Feed**

- **Filling:** Filled through a movable conveyor belt
- **Pressing force:** 40 tons
- **Motor power:** 11 kW
- **Machine weight:** 7 tons
- **Box size (LxWxH):** 1100 x 700 x 3000 mm
- **Bale size (LxWxH):** 1150 x 730 x 1200 mm
- **Capacity:** 3 to 5 bales/h
- **Bale weight:** 350 to 500 kg
- **# straps:** 7 + 2
**Single Box Press**

*Double Conveyor Feed*

- **Filling:** Filled through a fixed conveyor belt
- **Pressing force:** 75 / 120 tons
- **Motor power:** 18,5 / 37 kW
- **Machine weight:** 8 tons / 9 tons
- **Box size (LxWxH):** 1100 x 700 x 3250 mm
- **Bale size (LxWxH):** 1150 x 730 x 1300 mm
- **Capacity:** 4 to 5 bales/h
- **Bale weight:** 400 to 550 kg
- **# straps:** 7 / 9 + 2

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**Pit Press**

- **Filling:** Filled manually at floor level
- **Pressing force:** 70 / 120 tons
- **Motor power:** 18,5 / 37 kW
- **Machine weight:** 14 tons / 18 tons
- **Box size (LxWxH):** 1100 x 700 x 4000 mm
- **Bale size (LxWxH):** 1150 x 730 x 1300 mm
- **Capacity:** 5 to 6 bales/h
- **Bale weight:** 400 to 550 kg
- **# straps:** 7 / 9 + 2

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> 300kg
Swivel Box Press

**Basic**

- **Filling:** Manually through filling door
- **Pressing force:** 15 tons
- **Motor power:** 7.5 kW
- **Machine weight:** 2.5 tons
- **Box size (LxWxH):** 750 x 450 x 1200 mm
- **Bale size (LxWxH):** 765 x 465 x 250-600 mm
- **Capacity:** 10 to 12 bales/h
- **Bale weight:** 45 to 100 kg
- **# straps:** 4 + 3

**Lift Box**

- **Filling:** Manually through filling door
- **Pressing force:** 40 tons
- **Motor power:** 15 kW
- **Machine weight:** 5 tons
- **Box size (LxWxH):** 750 x 450 x 1500 mm
- **Bale size (LxWxH):** 765 x 465 x 250-600 mm
- **Capacity:** 15 to 20 bales/h
- **Bale weight:** 45 to 100 kg
- **# straps:** 4 + 2
**Pit Press**

- **Filling:** Manually directly in box
- **Pressing force:** 40 tons
- **Motor power:** 7.5 kW
- **Machine weight:** 4.5 tons
- **Box size (LxWxH):** 750 x 450 x 2000 mm
- **Bale size (LxWxH):** 765 x 465 x 250-600 mm
- **Capacity:** 10 to 15 bales/h
- **Bale weight:** 45 to 100 kg
- **# straps:** 4 + 2

**NDG Press**

- **Filling:** Through carts that go into the press
- **Pressing force:** 40 tons
- **Motor power:** 30 kW
- **Machine weight:** 10 to 12 tons
- **Box size (LxWxH):** 750 x 450 x 1500/2000 mm
- **Bale size (LxWxH):** 765 x 465 x 250-600 mm
- **Capacity:** 20 to 30 bales/h with manual strapping
  up to 50 bales/h with automatic strapping
- **Bale weight:** 45 to 100 kg
- **# straps:** 4 + 2

**45 - 100 kg**
In order to increase the capacity of the NDG press, several extensions can be added.
- A weighing and filling system for carts facilitates the process of loading the NDG carts. This system can also be used to feed material directly to a small swivel box press.
- An automatic cart feeding system automatically transports the NDG carts to and from the press.
- An automatic strapping system with PET-strap can be added to increase the capacity to 50 bales/hour with 1 press operator.
Bagging Press Manual

The manual bagging press is especially designed for 1 operator to weigh and press a load of wipers into a bag (or cardboard box). The press is equipped with a weighing scale or an integrated weighing system for a faster operation. Optionally, there is a high speed version (R) for a higher capacity.

<table>
<thead>
<tr>
<th>Machine</th>
<th>Bag weight</th>
<th>Motor power</th>
<th>Machine weight</th>
<th>Capacity (1 operator)</th>
<th>Bag/box and size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z1</td>
<td>1 kg</td>
<td>4 kW</td>
<td>1.000 kg</td>
<td>60 – 90 bags/h</td>
<td>PE-bag - 300x160x100 mm</td>
</tr>
<tr>
<td>Z5(R)</td>
<td>5 kg</td>
<td>7.5 kW</td>
<td>1.500 kg</td>
<td>25: 45 – 60 bags/h</td>
<td>PE-bag - 400x300x100 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Z5R: 50 – 70 bags/h</td>
<td></td>
</tr>
<tr>
<td>Z10(R)</td>
<td>10 kg</td>
<td>7.5 kW</td>
<td>1.500 kg</td>
<td>210: 40 – 55 bags/h</td>
<td>PE-bag - 400x400x200 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Z10R: 45 – 65 bags/h</td>
<td>Cardboard box - 500x400x200 mm</td>
</tr>
<tr>
<td>Z25(R)</td>
<td>25 kg</td>
<td>18.5 kW</td>
<td>2.500 kg</td>
<td>225: 35 – 45 bags/h</td>
<td>PP-bag - 800x400x220 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Z25R: 50 – 70 bags/h</td>
<td></td>
</tr>
</tbody>
</table>
The semi-automatic bagging press is especially designed for 2 operators to weigh and press a load of wipers into a bag (or cardboard box). 1 operator weighs the loads while the second operator handles the bags. An optional feeding system for bales can be added in order to facilitate and speed up the weighing process.

### Bagging Press

#### Semi Automatic

**Presses**

<table>
<thead>
<tr>
<th>Machine</th>
<th>Bag weight</th>
<th>Motor power</th>
<th>Machine weight</th>
<th>Capacity (2 operators)</th>
<th>Bag/box and size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z5R/AV</td>
<td>5 kg</td>
<td>30 kW</td>
<td>4.000 kg</td>
<td>Press cycle: 20 sec Operator time: 0 – 10 sec Capacity: 120 to 180 bags/ h</td>
<td>PE-bag - 400x300x100 mm</td>
</tr>
<tr>
<td>Z10R/AV</td>
<td>10 kg</td>
<td>30 kW</td>
<td>4.000 kg</td>
<td>Press cycle: 20 sec Operator time: 0 – 10 sec Capacity: 120 to 180 bags/ h</td>
<td>PE-bag - 400x400x200 mm Cardboard box - 500x400x200 mm</td>
</tr>
<tr>
<td>Z25R/AV</td>
<td>25 kg</td>
<td>30 kW</td>
<td>5.000 kg</td>
<td>Press cycle: 30 sec Operator time: 0 – 10 sec Capacity: 90 to 120 bags/ h</td>
<td>PP-bag - 800x400x220 mm</td>
</tr>
</tbody>
</table>
Peripherals

Cart

Container

Sorting table

Cart

Container

Bag holder

Container

Sorting table