HLZ - counting and sorting machines for UBCs
About us

- Company founded 1945
- Location of company Ølholm, Denmark
- Number of employees about 30
- Supplier of brewery equipment since 1945
**About us (2)**

- 2003 - delivery of the first high speed sorting and counting system (HLZ) for glass UBCs to the Danish Deposit System (DRS)
- 2005 - delivery of 7 HLZ machines for mixed containers to German customers
- More than 130 HLZ machines are delivered to customers in 10 countries
- Main supplier of high-speed counting and sorting machines for the UBC industry worldwide
HLZ System

Scanner Unit

Sorting line

Feeder

Quattro Disc inliner

HLZ high-speed counting and sorting system
Scanner Unit (see next slide)

- Scanning on the fly through the scanner section
- Photocells for detection of containers
- 360° scanning with 8 cameras
- Barcodes and safety markings if any
HLZ high-speed counting and sorting system
**In-liner**

- Quattro Disc
- Mono Disc
- Choice depends on container types, capacity, batch sizes and space available (footprint)
**Quattro Disc Inliner**

- For PET, cans and glass bottles mixed or pre-sorted
- Can also handle tetra and gable-top
- Capacity 200 to 300 UBCs/minute
- Continuous feeding by bulk-feeder or conveyor
**Mono Disc Inliner**

- For glass, PET and cans. Handles also tetra and gabletops.
- Capacity 80 - 100 UBCs/minute
- Manual or semi-manual feeding
- Smallest footprint
- Most economical solution
**Infeed**

- Infeed of UBCs to inliner
- Bulk feeder
- Conveyor
- Manual feeding
- Choice depends on container types, capacity, UBC carrier type
Sorting line

- Air nozzles
- Standard up to 8 sorting stations on request up to 32 sorting stations
- 1 or 2 no-read sorting stations
- Sorting directly into compactors, on conveyors, into sacks or mega-bags
• Counting centers operated by:
  - Private companies
  - Retailers
  - State monopolists (stewards)
  - Beer/liquor chains
• Bottlers
• Bottle dealers
• Bottle depots
• Stewards (QA-control)
References

130 units sold to 10 countries:

Australia (South Au.), Canada (BC), Croatia, Estonia, Iceland, Germany, Norway, Sweden, Finland, Denmark.
Our customers
Our customers
Our customers
Our customers

Bottle depots in Iceland
Various Issues

- Business Intelligence (Data Collection)
- Service and support
- “LEGO” Block system
- Industrial Quality
- Approvals (CSA and UL)
Optimisation of bottle depot performance by using high-speed sorting machines
Why consider counting machines?

- Improvement of customer experience;
- Waiting time (to get in)
- Retention time
- Minimization of need for pre-sorting
- Transparency of payment
- Overall system accountability and transparency
- Minimization of fraud
- Reduction of operational costs
Why consider counting machines?

- Higher utilization of existing bottle depots
- More customers through the same facilities
- And overall it should of course assist in obtaining higher recycling rates
At least 3 possible solutions for bottle depots :

- Count-only machines
- Count-only machines combined with high-speed sorting
- Bottle depot machines
Count-only
Count-only solutions are characterized by the following:

- Pre-sorting required: Yes
- Validation of deposit value: No
- Generation of data files: No
- Nominal capacity: Up to 100 beverage containers/minute
- Investment level: 40-50,000 CAD per unit depending on specifications
- Payback period based on savings in direct labour costs only: Approx. 1 year
Count-only
Recommended number of machines for a bottle depot:

Up to 18 million units/year: 3 x HLZ-C (aluminium, PET, glass)
18-24 million units/year: 4 x HLZ-C (2 x aluminium, PET, glass)
24-30 million units/year: 5 x HLZ-C (2 x aluminium, 2 x PET, glass)
30-36 million units/year: 6 x HLZ-C (2 x aluminium, 2 x PET, 2 x glass)
Counting and sorting

1. Count-only machine
2. Collecting conveyor
3. Bulk feeder
4. Duo Disc inliner
5. Iceman inliner
6. Material fractions
7. Conveyor for no-treads
### HLZ high-speed counting and sorting system

**Count-only combined with sorting are characterized by the following:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-sorting required:</td>
<td>No</td>
</tr>
<tr>
<td>Validation of deposit value:</td>
<td>No (validation on an overall level but not per customer)</td>
</tr>
<tr>
<td>Generation of data files:</td>
<td>Yes (on an overall level)</td>
</tr>
<tr>
<td>Nominal capacity:</td>
<td>HLZ-C up to 100 containers/minute per unit</td>
</tr>
<tr>
<td></td>
<td>HLZ-QD up to 200-300 containers/minute per unit</td>
</tr>
<tr>
<td>Investment level:</td>
<td>40-50,000 CAD per HLZ-C and 270-300,000 CAD per HLZ-QD depending on the actual specifications</td>
</tr>
<tr>
<td>Payback period based on savings in direct labour costs only:</td>
<td>Approx. 2 years</td>
</tr>
</tbody>
</table>
Recommended number of machines for a bottle depot:

- Up to 12 million units/year: Not applicable
- 12-18 million units/year: 3 x HLZ-C + 1 x HLZ-QD
- 18-24 million units/year: 4 x HLZ-C + 1 x HLZ-QD
- 24-30 million units/year: 5 x HLZ-C + 1 x HLZ-QD
- 30-36 million units/year: 6 x HLZ-C + 1 x HLZ-QD
Bottle depot machine
Bottle depot machines are characterized by the following:

- Pre-sorting required: No
- Validation of deposit value: Yes (per customer)
- Generation of data files: Yes
- Nominal capacity: Up to 100 containers/minute per unit
- Investment level: 180 – 200,000 CAD per unit depending on the specifications
- Payback period based on savings in direct labour costs only: Approx. 3.5 years
Suitable beverage containers

• The counting and sorting machines from Anker Andersen A/S are designed to handle cylindrical or almost cylindrical beverage containers up to a diameter of 130 mm. This means that the machine can handle aluminium cans, PET bottles and glass bottles.

• Recent research and development efforts has resulted in technical improvements making it possible to handle Tetrapaks and gabletops.

• The machines will typically be able to handle more than 95% of all non-refillable beverage containers arriving at a bottle depot.

• With the exception of stand-alone HLZ-C machines, the beverage containers do not need to be pre-sorted prior to infeed. Cans, PET bottles and glass bottles can be mixed randomly.
### Functional comparison of solutions for counting and sorting in bottle depots

<table>
<thead>
<tr>
<th></th>
<th>Pre-sorting required</th>
<th>Can be operated by customers</th>
<th>Validation of deposit value</th>
<th>Customer waiting time impact</th>
<th>Customer retention time impact</th>
<th>Customer transparency</th>
<th>System accountability impact</th>
<th>Counting of containers</th>
<th>Reading of barcodes</th>
<th>Automatic sorting in material fractions</th>
<th>Generation of data files</th>
<th>Nominal capacity</th>
<th>Payback years, typically</th>
<th>Investment level</th>
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</thead>
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<tr>
<td><strong>Count-only machines</strong></td>
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<tr>
<td>HLZ-C</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>+</td>
<td>(+)</td>
<td>+</td>
<td>NONE</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>100</td>
<td>1</td>
<td>LOW</td>
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<td><strong>Count-only + high-speed sorting</strong></td>
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<tr>
<td>HLZ-C + HLZ-QD</td>
<td>NO</td>
<td>YES</td>
<td>SOME</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>200-300</td>
<td>2</td>
<td>MEDIUM</td>
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<td><strong>Bottle depot machines</strong></td>
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<tr>
<td>HLZ-MD</td>
<td>NO</td>
<td>YES</td>
<td>FULL</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>100</td>
<td>3.5</td>
<td>HIGH</td>
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</table>

+ = Some improvement

++ = Substantial Improvement
<table>
<thead>
<tr>
<th>Bottle depot size – millions/year</th>
<th>6</th>
<th>12</th>
<th>18</th>
<th>24</th>
<th>30</th>
<th>36</th>
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<td>HLZ-C</td>
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<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Count-only + high-speed sorting</td>
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</tr>
<tr>
<td>HLZ-C + HLZ-QD</td>
<td>N/A</td>
<td>N/A</td>
<td>3+1</td>
<td>4+1</td>
<td>5+1</td>
<td>6+1</td>
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<tr>
<td>Bottle depot machines</td>
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</tr>
<tr>
<td>HLZ-MD</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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</tbody>
</table>
Typical split of container types
(West Canada, without milk)

• Aluminum cans 50%
• PET-Bottles 22%
• One-way glass 0-1 L 10%

Total: 82% (87%)

The remaining fractions are:

Refillable Beer 6%  PET over 1 L  5%
Tetra 0-1 L  5%  Others  2%
Sorting of blue bin materials
Improved customer interface
Activities in Alberta

- Establishment of an industrial demonstration project with installation of a HLZ system in a bottle depot environment.
- Financial contribution from BCMB and ABCRC.
- Meetings with interested bottle depots next week.
- Contract scheduled for late October with delivery in the first quarter of 2011.
Activities in British Columbia

- HLZ QD under delivery to Encorp for Encorp’s QA-facility in Vancouver.

- Commercial operation scheduled before year-end.
For more information:

- check our homepage at: www.anker-andersen.com
- see video-clips on www.youtube.com searchword “hflric”
- Read the hand-out article
- Richard Christiansen will be available for further discussions during the program breaks the whole day
We will be on the road for you, and
You can count on us!