Trends

1. Tightening regulations
2. Better working environment
3. Higher capacity loading and unloading
4. Higher operating efficiency
Grab unloaders *no longer viable solution*...

- Legislation that stops the use of unloader to handle both food and non food products.
- Tougher pollution and environmental laws that prohibit the emission of dust.
- Zero tolerance on product spillage and losses.
- Reduction on noise pollution.
- Trending towards dedicated terminals that only handle grains and meet food safety laws.
- Trending towards solutions that are efficient and require less space.
Ship & Barge unloaders (200–1300 t/h)
Portfolio overview

**Portalink**
- Unloading
- Energy efficient and reliable operation

**Portacombi**
- Flexible
- Combination loading and unloading

**Portacombi**
- Transfer
- Vessel unloading and barge loading
Unloader range to match capacity and vessel sizes

<table>
<thead>
<tr>
<th>Unloader Model</th>
<th>Nominal Peak Capacity</th>
<th>Boom Length</th>
<th>Typical Ship Sizes (DWT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portalino 300</td>
<td>300 t/h</td>
<td>20 m</td>
<td>3,000 to 30,000</td>
</tr>
<tr>
<td>Portalink 400</td>
<td>400 t/h</td>
<td>25 m</td>
<td>3,000 to 60,000</td>
</tr>
<tr>
<td>Portalink 600</td>
<td>600 t/h</td>
<td>25 / 27 / 32 m</td>
<td>10,000 to 120,000</td>
</tr>
<tr>
<td>Portalink 800</td>
<td>800 t/h</td>
<td>27 / 32 m</td>
<td>10,000 to 120,000</td>
</tr>
<tr>
<td>Portalink 1100</td>
<td>1100 t/h</td>
<td>27 / 32 m</td>
<td>10,000 to 120,000</td>
</tr>
<tr>
<td>Portalink 1300</td>
<td>1300 t/h</td>
<td>27 / 32 m</td>
<td>10,000 to 120,000</td>
</tr>
</tbody>
</table>
Safe and Flexible operation

- Unloader leg mounted on spherical suspension that compensates horizontal movements to prevent structural overload.

- Bühler auto-sink feature for optimal grain unloading depth.

- Auto-sink function will also compensate vertical movements to prevent structures overload.

Wind, tides, waves and other vessels have an impact.
Integrated Unloading & Loading

*flexibility through combined systems*

- Flexible solution for unloading of large ships and loading smaller ships / barges
- Unloading to storage or direct loading
- Cost effective 2 in 1 solution.
Operator Cabin & Remote Control

**Operator Cabin**
- Panoramic visibility
- Full operational control
- Touch control panel
- Easy operation visualisation

**Remote Control**
- Operators panel
- Push buttons
- Emergency stop
- Control joysticks
Truck Loading Spout(s)
Earthquake Absorbers
seismic zones solution
Unloading Efficiency
Influence of working range

Additional unloading time...!!
Bühler Kick-In / Kick-Out

Vertical Suspended Unloader

disadvantages:
- Limited to vertical up and down movement
- Limited working range, no reach underneath hatch rim
- Bulldozer unloading process starts much earlier
Portalink Mechanical Unloader

- **Efficient Unloading:**
  Flexible slewing and luffing movements that achieve optimal reach into hatch.

- **Gentle Handling:**
  Low speed column of product ensures minimum friction and product breakage.

- **Low Energy Consumption:**
  Low product conveying speed results in low energy consumption per tonne.

- **Low operating costs:**
  Few wear parts combined with low conveying speed and gentle movements result in reliable service and easy maintenance.
YOUR GRAIN - OUR PASSION!