The use of steam suction in strategic places of the slaughter line will be an efficient tool to increase product safety in the Danish slaughterhouses.

The steam vacuum suction head has been developed with continuous steam supply to disinfect the suction head. The steam suction removes all visible dung contamination, dirt and hair on relatively smooth surfaces in breast and belly of the pig carcasses; the suction does not remove dung colour tracks.

The principle of the equipment is that the steam supply currently disinfects the mouth piece. The steam is led across the surface of the carcasses, which assists in removing impurities such as dung, hair etc. The steam which hits the surface may also have a disinfecting effect on the bacteria which have not been removed.

Results of the microbiological tests show that when steam suction is used for removal of visible dung contaminations, hair, etc. you will achieve a lower aerobe bacterial count and a lower proportion of positive E coli tests than achieved when knife cutting.

In documentary tests cattle hind legs, among others, were processed. The test group was processed with the steam device – and a control group was cut with knife. Both processes lasted 10 seconds.

The results were as follows:
Reduction of the aerobe bacterial count (total count) compared to the starting level:
When suction was used: 94% were removed
When knife was used: 69% were removed.

Reduction of number of tests E coli positive – the starting level was 51% positive tests.
After use of steam suction: 7% of the tests were E coli positive
After use of knife: 26% of the tests were E coli positive

Source: Danish Meat Research Institute
**OPTIMALIZATION**

- The most efficient and economic use of the steam suction equipment is as supplement to the other operations in the slaughter line. In return the optimum process will be to introduce steam suction in more working places in order to remove the contamination immediately after occurrence.
- The steam device cannot replace cleaning and tearing off membranes at the after control. But if the equipment is introduced earlier in the slaughter line, where the contamination is fresh, suction may make the removal of membranes unnecessary at the after control as colouring has not taken place yet.
- Steam suction is better than trimming in order to remove dirt and bacteria from the surface of the cattle carcasses. As a replacement of trimming, steam suction will not add to the time consumption for removal of impurities.

**MACHINE ADVANTAGES**

- Ergonomic handle.
- Less tiring to operate as it is very light and no disturbing external steam pipe of the head part of the mouth piece end.
- Quick-lock for easy and quick replacement of handle.
- The opening and the suction direction of the mouth piece is at a right angle to the centre line which makes the operation easy and improves the cleaning effect.

**HYGIENE**

- The suction head with continuous steam supply will be able to reduce the risk of cross contamination considerably.
- If you introduce steam suction at more places in the slaughter line, areas which are exposed to contamination will be sucked by routine and thus improve the slaughtering hygiene and product safely. Examples are the cut line and hind shank.

**PRE-CONDITIONS**

- The suction device is CE marked and meets the demands laid down in the HACCP regulation.
- The mouth piece of the equipment has been examined for temperature and microbiological load.

**SAFETY**

The operator does not risk to get burned as the channel for the steam supply is placed in the handle and the connection part, kept cool by the air which is sucked through them.

**LEGAL PRE-CONDITIONS**

The Directorate for Foodstuffs has permitted a general use of the steam suction system in areas, exposed to surface contamination. The steam suction is to be carried out immediately after the contamination has taken place.

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Steam</th>
<th>1.2-1.5 Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kg/h</td>
<td>5</td>
</tr>
<tr>
<td>Pipe dimension</td>
<td>¼”</td>
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<tr>
<td>Vacuum Connected directly to existing suction supply.</td>
<td></td>
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</tbody>
</table>

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