

# Prevention of Pre-Stun Shocks in Electrical Waterbaths

## SUMMARY

The majority of birds slaughtered in UK processing plants are stunned using an electrical waterbath. With this system, conscious birds are hung onto a moving shackle line and passed through an electrical waterbath which stuns them, rendering them immediately unconscious and insensible to pain.

Potentially painful pre-stun shocks can occur during waterbath stunning. These happen when birds receive an electric shock which does not cause immediate unconsciousness. They are more common in the stunning of turkeys and geese, because the wings hang lower than the head, and is thought to be an extremely painful experience for the birds.

Measures must be taken to prevent this from happening and this leaflet focuses on how to reduce the occurrence of pre-stun shocks depending on the set-up of the slaughter line.

**Operators must be trained to identify signs of pre-stuns shocks and must know the appropriate action to be taken to prevent birds from suffering unnecessarily.**

## Legislation

The legislation covering the welfare of birds whilst being handled and slaughtered is *The Welfare of Animals (Slaughter or Killing) Regulations 1995 (as amended) (WASK '95)*.

In this legislation, the general principle concerning electrical waterbath stunning and pre-stun shocks is that the waterbath:

*'...is adequate in size and depth for the type of bird being slaughtered;'*

*'...does not overflow at the entrance, or, if an overflow is unavoidable, measures are taken to ensure that no bird receives an electrical shock before it is stunned;'*

## Background

In order for birds to be stunned/killed using an electrical waterbath stunner, they need to be hung onto a moving shackle line and passed through an electrified waterbath which stuns them and renders them immediately unconscious and insensible to pain.

Pre-stun shocks can happen when the birds' wings make contact with the waterbath before the head, or with the side of the waterbath as the bird enters. Pre-stun shocks can also occur when electrically live water flows out of the waterbath and onto the entry ramp. Wing flapping on entry of the waterbath makes pre-stun shocks more likely and, in turn, if birds receive a pre-stun shock this may start wing flapping and affected birds may then 'overfly' the electrical waterbath and not be stunned at all.

Because of their large wingspan, the wings of turkeys and geese hang lower than their head therefore, unless certain measures are implemented, they are more likely to receive pre-stun shocks than other poultry species. The situation can be worse when the shackle line slopes into the waterbath.

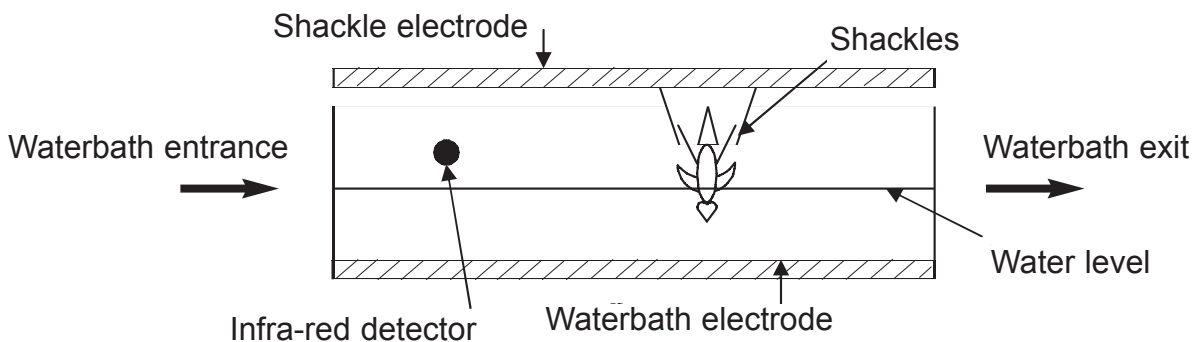




## Ways of Avoiding Pre-Stun Shocks

- 1) Prevent water overflowing at the entrance of the electrical waterbath stunner.
- 2) For low-throughput processing plants, where only one bird is passing through the waterbath at any one time, a sensing device can be used which switches the current on when the bird is in the right position (see Figure 1).

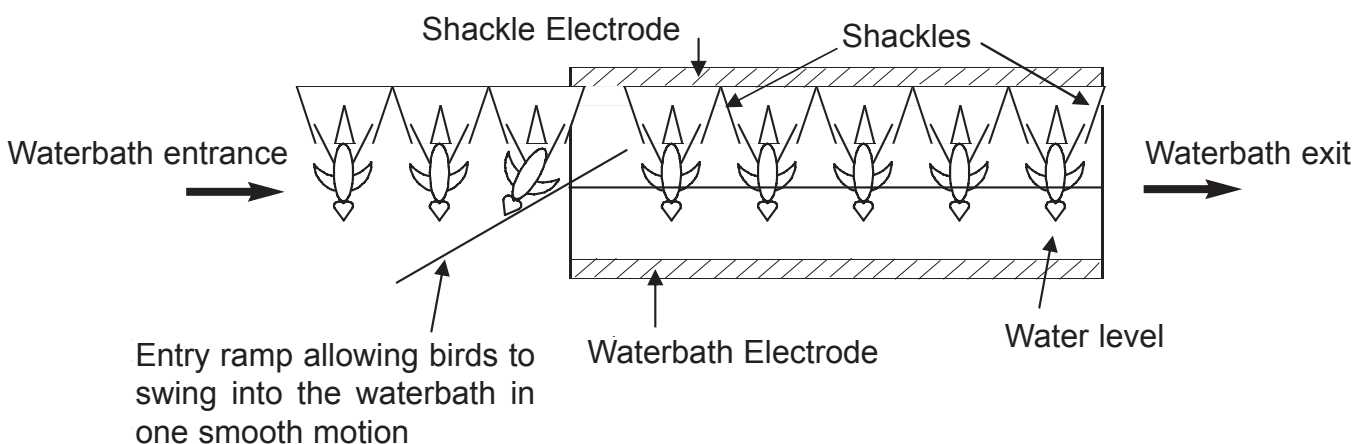
This approach works because the waterbath stunner is switched off until the bird's head is in contact with the water. A passive infra-red detector, which senses the heat from the bird's body, is used to regulate when the current is switched on and then off again.



**Figure 1 Diagram of a bird passing through an electrical waterbath where the current is only switched on when the bird passes the infra-red detector**

- 3a) For high-throughput processing plants, where more than one bird is passing through the waterbath at any one time, a steeply inclined flat ramp bolted on to the entrance of the waterbath can be effective.

The ramp should extend over the water so the birds get drawn up the ramp by the shackle line and then swing down into the water in one smooth movement. This results in the bird's head and wing entering the water together and the bird is stunned immediately (see Figure 2).

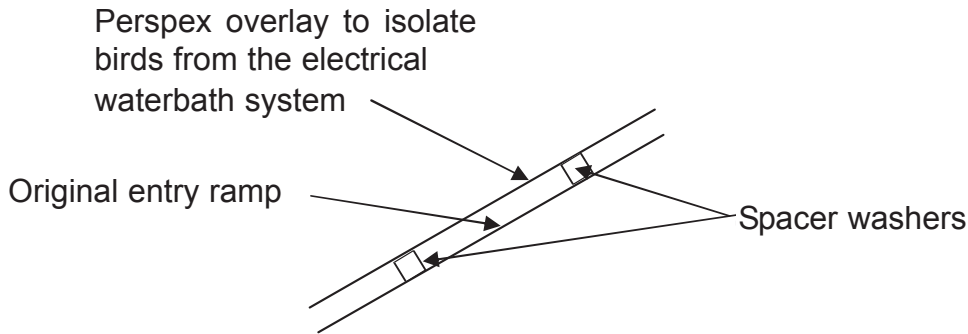


**Figure 2 Diagram of how pre-stun shocks may be reduced by using an entry ramp which swings birds into the electrical waterbath stunner in one motion**



**3b)** Whilst entry ramps will help to reduce the likelihood of birds receiving pre-stun shocks once they enter the waterbath, care must be taken to ensure birds do not receive them from the entry ramp itself. This may occur if the ramp is electrically live because of water flowing from the bath onto the ramp or if it is not isolated from the rest of the stunner.

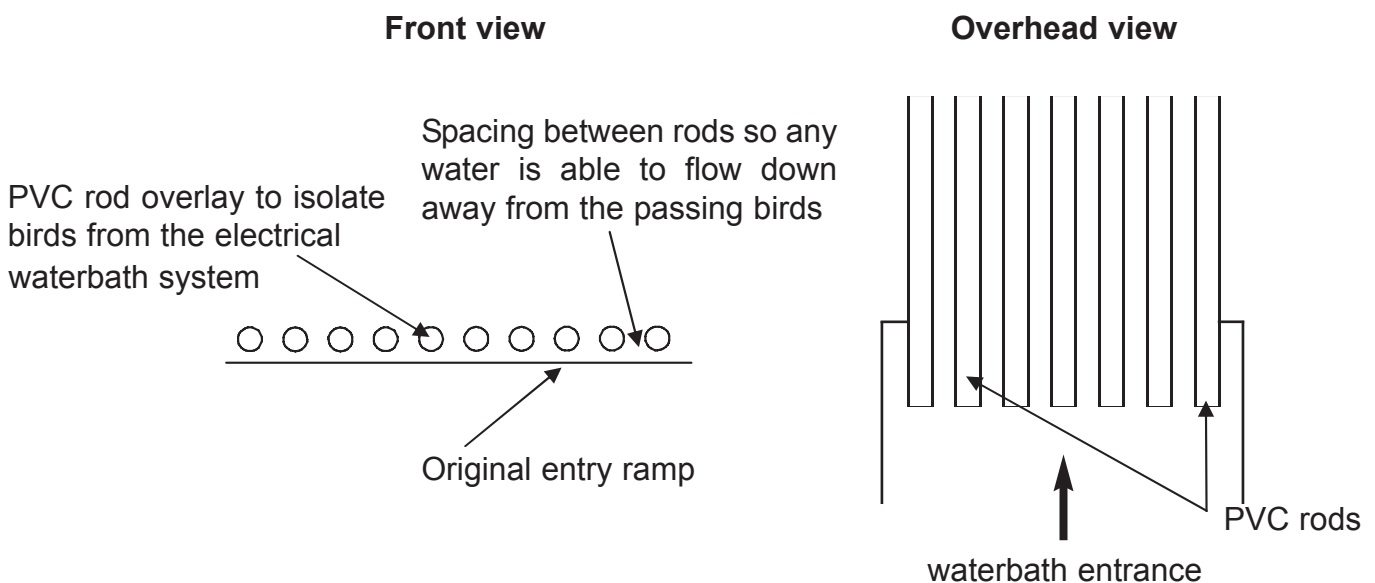
The entry ramp can be isolated by using a Perspex overlay with spacer washers between it and the original ramp (see Figure 3). This helps to ensure that any water overflowing at the entrance does not go directly onto the area the birds are touching but flows underneath between the two layers.



**Figure 3 Diagram of how the entry ramp can be isolated from the electrical waterbath system by spacer washers and a Perspex overlay**

**3c)** Research funded by the HSA has led to the development of another way to reduce pre-stun shocks on the entry ramp using PVC rods over the original ramp rather than a solid perspex surface. The idea of this system is that any water that does splash onto the entry ramp will flow down either side of the rods and not come into contact with the birds moving up the ramp (see Figure 4).

This research has not yet been completed but initial results show that this method appears to be very effective in reducing the amount of pre-stun shocks seen when just the original entry ramp is used.



**Figure 4 Side and overhead diagram of how the entry ramp can be isolated from the electrical waterbath system by PVC rods**



## Further reading

*The Welfare of Animals (Slaughter or Killing) Regulations 1995* (as amended) HMSO 1995  
Full details of all legislation can be found on [www.legislation.hmso.gov.uk](http://www.legislation.hmso.gov.uk)

*How to Prevent Pre-stun Electric Shocks in Waterbath Stunners* (1991) S Wotton and N Gregory *Turkeys*, 39: pg 15 and 30

*The Welfare of Poultry at Slaughter* (1991) P Hewson and R Russell *The State Veterinary Journal* vol:75–81

For more information regarding the 'PVC rod' ramp contact *Paul Berry Technical* [paulberry@pbtech.co.uk](mailto:paulberry@pbtech.co.uk)

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The Humane Slaughter Association is the only registered charity which specialises in the welfare of food animals at catching (white meat species), in markets, during transport and at slaughter.

It achieves its aims by arranging practical training sessions, by publishing educational materials, by funding research projects and by providing constructive advice and information. This rational approach continues to achieve significant improvements to food animal welfare.

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The only charity committed exclusively to the welfare of animals in markets, during transport and to the point of slaughter



Taking a rational, practical approach, making real, lasting improvements to the welfare of food animals

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