

# Instantaneous Mechanical Destruction

## SUMMARY

Surplus day-old chicks are generated from both layer and broiler hatcheries. Primarily it is male chicks which need to be disposed of in layer hatcheries, whereas in broiler hatcheries cull or unviable chicks require disposal. UK legislation permits surplus chicks to be killed by mechanical apparatus which causes immediate death, exposure to specified gas mixtures or by neck dislocation.

This leaflet is based on the legal and welfare requirements of using Instantaneous Mechanical Destruction (IMD). It focuses on the two designs of IMD commonly used in the UK for the disposal of day-old chicks, however this guidance does not exclude the use of other designs of IMD.

As unpleasant as it may sound, when used correctly, IMD can be a very humane and effective method of disposing of surplus day-old chicks. It is imperative that all staff using IMD machines are trained in accordance with the Humane Slaughter Association (HSA) *Code of Practice for the Disposal of Chicks in Hatcheries - 2nd Edition* and the recommendations set out by the manufacturers' specifications.

**Although aesthetically unpleasant, Instantaneous Mechanical Destruction (IMD) is a humane and effective disposal method for day-old chicks when used, managed and maintained correctly.**

## Legislation

Schedule 11 of *The Welfare of Animals (Slaughter or Killing) Regulations 1995 (WASK 95) (as amended)*, states that surplus chicks can be killed by a mechanical apparatus which produces immediate death. This legislation specifies that:

“No person shall use, or cause or permit to be used, any mechanical apparatus to kill any surplus chick unless the apparatus contains rapidly rotating mechanically operated killing blades or projections and the capacity of the apparatus is sufficient to ensure that every chick is killed immediately.”

For mechanical apparatus to be considered humane and to comply with legislation it must cause immediate death to each individual chick.

According to WASK 95 all embryos in hatchery waste must also be disposed of using mechanical apparatus (Schedule 11 (paragraph 6)), however this leaflet is primarily concerned with live chicks that have broken away or are free from their shells.

**Under NO circumstances must live chicks, no matter how unviable, enter an IMD machine along with hatchery waste and debris.**





## Options available

There are two main designs of IMD commonly used in the UK, the roller type and knife type. The roller type will either have one roller that rotates against a solid side, or two interlocking rollers (see Figure 1a). The roller(s) have solid projections that run along their length, and rotate rapidly. This type of IMD causes all chicks to be killed immediately in the narrow, restricted gap between the projections.

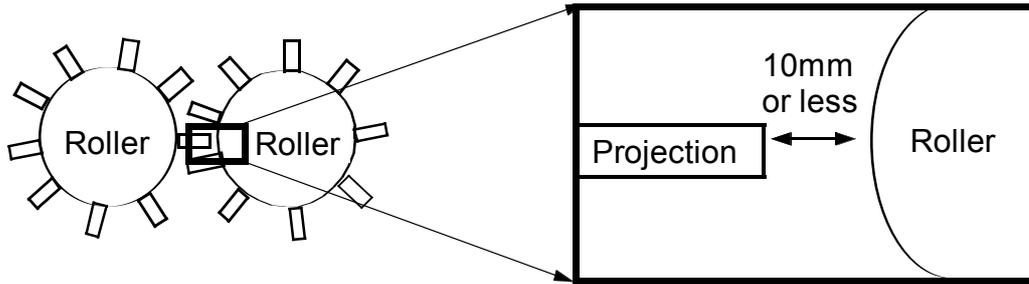
The knife-type design has rapidly rotating blades, which effectively shred the chicks (see Figure 2a). The blades in this design, although not necessarily sharp, must successfully fragment the chicks resulting in immediate death.

## General IMD specifications

- The rotating parts of the IMD machine must always operate at the manufacturer's specified speed which must result in immediate death of every chick. These parts tend to rotate at a speed which is pre-determined by the motor capacity of the IMD.
- Machinery must be properly set up according to the manufacturers' specifications.
- The capacity of the IMD machine must be compatible with the throughput of the hatchery.
- To avoid blockages, chicks should enter the machine at a rate compatible with its capacity.
- Chicks should be fed into the IMD machine by a trained operator, who manually places chicks into the apparatus, or on a conveyor, in single layers.
- The entrance to the IMD machine should always direct chicks into the working parts of the equipment, without causing deflection or bouncing of chicks.
- The drop distance into the working parts of the IMD machine should be kept to a minimum.
- There should be no possibility of chicks being deflected out of the IMD machine by revolving blades.
- The working parts, whether blades or projections, must be correctly positioned to kill all chicks instantly, causing no deflection.
- If the IMD machine stops, then any mechanical conveyor must also stop simultaneously.
- Daily inspection of the waste/chick particles exiting the IMD machine must be made to ensure that the equipment is operating effectively. This inspection should happen as soon as possible after culling has begun. If a problem is identified, the equipment must be stopped and corrective action taken. The equipment should not be used again until the problem has been rectified.

## Common roller-type design: specifications

- Roller-type IMD (Figure 1a) machines should have solid projections which radiate from the roller(s) or from a solid side. Rollers without projections will merely result in chicks being 'flattened'.
- The gap between the roller(s) or side projections, ie the area through which chicks are crushed, must not be more than 10mm (Figure 1b). Rollers or projections must not be forced apart by the chicks.
- Chicks must be killed immediately in the narrow, restricted gap between the roller(s) or side projections.
- If projections are damaged they must be repaired or replaced; damaged projections could reduce the effectiveness of the machine.

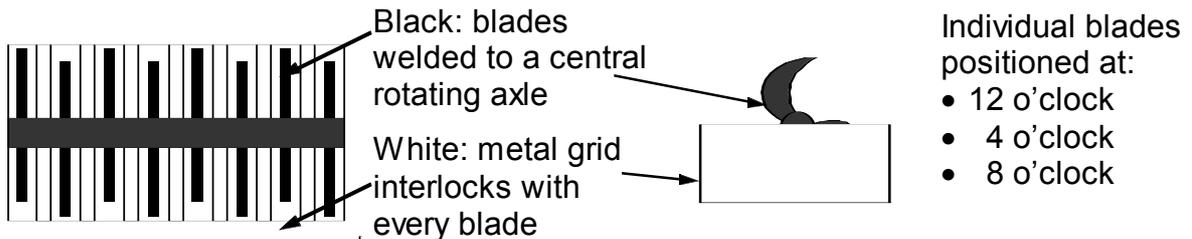


**Figure 1a.** Roller-type design

**Figure 1b.** Magnified section of Figure 1a

**Common knife-type design: specifications**

- Knife-type IMD (Figure 2a) machines should have solid blades, which radiate from a central axle. This central axle and individual blades can interlock with a grid. Neither blades nor grid need necessarily have sharp edges as they cut effectively due to the speed at which the blades rotate.
- The blades should be strategically located around a central axle to ensure that all chicks are killed immediately. For example in Figure 2b blades are located at 12 o'clock, 4 o'clock and 8 o'clock and rotate in a clockwise direction.



**Figure 2a.** Aerial view

**Figure 2b.** Side view of projections

- All equipment should be set up according to the manufacturers' specifications.
- The blades should rotate at a speed which ensures the instant death of all chicks.
- If blades are damaged they must be repaired or replaced, as damaged blades will reduce the effectiveness of the machine.

**Staff training**

To ensure that IMD machines are used correctly, hatchery staff must be trained in accordance with the recommendations set out by the manufacturers' specifications and the *Code of Practice for the Disposal of Chicks in Hatcheries - 2nd Edition*. Staff training should include how the machine works and the welfare problems associated with its incorrect use. Relevant staff should also be trained in the cleaning and maintenance of the IMD machine. A contingency plan must be made, which: details alternative chick disposal methods in case of a breakdown; identifies trained competent staff who can carry out emergency procedures; and lists contact details for manufacturers and engineers. All staff should be familiar with this contingency plan and it should be reviewed regularly. Although some operators might find the use of IMD machines unpleasant, they must be made aware that any hesitation on their part could lead to unintentional suffering. If staff have any doubts about their ability to use an IMD machine effectively, they must notify their supervisor immediately.



## Cleaning and maintenance

The ability of an IMD machine to cause immediate death to chicks is greatly dependent on the working parts (ie blades or projections) operating correctly. To ensure effective functioning of an IMD machine, hatchery staff must employ a strict and rigorous cleaning and maintenance regime:

- A **daily inspection** should be made by a trained and competent member of staff to ensure the IMD machine is working correctly. If a problem is identified during this inspection the IMD machine must be stopped immediately.
- All working parts of the IMD machine must be **thoroughly cleaned every time the machine is used**.
- Relevant **staff should be trained** to ensure they are competent at dismantling and cleaning the IMD machine.
- A lack of **regular maintenance** can significantly reduce the effectiveness of any IMD machine.
- A **weekly maintenance check of all aspects of the IMD machines** should be made by a competent member of staff. If problems are identified then the IMD must not be used for chick disposal until the problem has been rectified. Spare parts for the IMD machine should be kept on-site, to ensure a prompt repair.
- **Cleaning and maintenance records** should be completed and filed safely in the hatchery manager's office.

**Cleaning and maintenance of an IMD machine is essential to ensure that all chicks are killed instantly.**

### IMPORTANT

**Although aesthetically unpleasant, instantaneous mechanical destruction (IMD) is a humane and effective disposal method for day-old chicks when used, managed and maintained correctly.**

## Further details

*Code of Practice for the Disposal of Chicks in Hatcheries (2nd Edition)*

HSA 2001

*The Welfare of Animals (Slaughter and Killing) Regulations 1995 (as amended)*

MAFF 1995

Full details of all legislation can be found on the following website: [www.tso.co.uk](http://www.tso.co.uk)

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*Humane Slaughter Association*

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

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