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CARE GUIDANCE

RECOMMENDATIONS ON BEST PRACTICE

LEVEL 3

Work Practices for Die Cutting

WORK PRACTICES FOR DIE CUTTING

INTRODUCTION

This is a level 3 document in the ECFIA CARE Guidance series and should be read in conjunction with the level 1 document "Working with HTIW – Effective Risk Management".

WHAT IS THE CARE PROGRAMME?

ECFIA´s Controlled And Reduced Exposure (CARE) Programme is an important part of the Product Stewardship Programme. It allows employers to proactively minimize fibrous dust exposure and thus protect workers' health.

WHAT ARE THE CARE GUIDANCE DOCUMENTS?

These documents form a comprehensive library of information on the safe handling and use of HTIW products. They have been written by industry experts and are designed to give customers of ECFIA members helpful information to put in place effective controls to minimise exposure to airborne fibres. This series of documents will progressively grow as new documents are produced.

Level 1 guidance document: "Working with HTIW - Effective risk management"
Level 2 guidance documents: Risk management measures applicable to HTIW
Level 3 guidance documents: Examples of specific applications

WHAT IS DIE CUTTING?

Die cutting machines (also known as die stamping machines) can be used on products of varying types, including paper, felt, blanket and board. Shapes/pieces are stamped out of the HTIW felt, blanket, etc., as it is fed through the die cutting machine, and the operator then removes the cut shapes/pieces manually and either stacks or packages them straight away for dispatch or for further finishing. In the same process step, off-cuts and waste must be handled and packed accurately.

Sources of Emission

During the die cutting process there are several sources of dust emission that may require the application of dust control measures:

- The action of the cutting head (stamping) within the machine
- Removing, stacking or packaging cut pieces from the machine
- Removal of surplus material and bagging of waste.

EXAMPLES OF CONTROL MEASURES

Although the cutting tool within such machines is generally enclosed and has some level of extraction installed, at this point in the process there is actually minimal worker interaction. Depending on the nature of the process, additional controls may be necessary to reduce dust generation during the manual removal and packing of shapes/pieces, as well as off-cuts and waste, when maximum worker interaction is expected.

Some examples of dust controls that could be used in the workplace for this operation are described below:

Enclosures

Enclosures are normally found around the die cutting tool and can lower dust emissions greatly. Total enclosure is preferable to partial enclosure.

Extraction

Again, extraction is generally found on the cutting tool of the die stamp machine, which helps to minimise emissions by removing the dust at source.

Automation

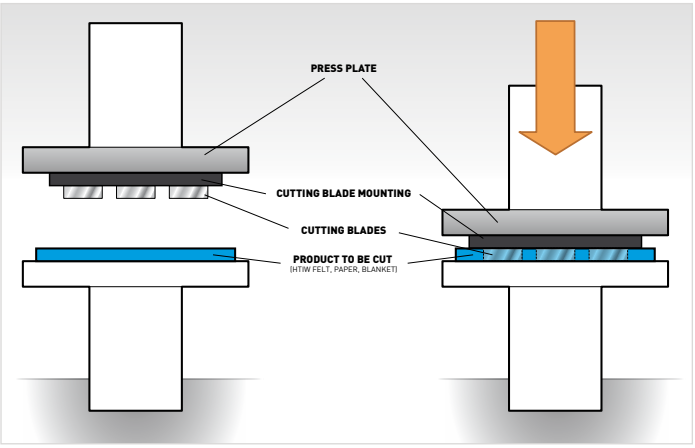
Die cutting machines that have some degree of automation in terms of material feed into the machine have been found to produce lower worker exposure to fibrous dust, as the amount of manual handling of the HTIW materials is reduced. Ideally, the removal of cut shapes/pieces should also be automated, but this is more complicated and not always possible due to the variation in shape, number of pieces, size and complexity of pieces produced on single machines. Particular attention must be paid to the handling and packing of off-cuts and waste.

Down-draft table

Down-draft tables installed within a partial enclosure (booth) can provide good dust control at the workstation, specifically where the parts are removed to the next stage in the process. This type of booth reduces the levels of fibrous dust in the worker's breathing zone and also creates an airflow which extracts the dust downwards into a waste collection system.

EXAMPLES OF VARIOUS DIE CUTTING MACHINES

Below are some examples of die cutting machines:



Automatic board feed

Enclosed cutting operation

Non-enclosed die cutting machine

There are a large number of variables within the die cutting process, all of which need to be considered when constructing a dust control system. The system needs to control exposures during both cutting and handling activities, i.e. not focusing solely on the cutting mechanism. Particular attention should be paid to the handling of cut parts, off-cuts and waste.