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Hand fed Roller Die-Cutting Press Machine

Background

The HSE has recently been investigating an accident on a Hand Fed Roller Die-Cutting Press Machine that occurred in the Print Sector. The operator received serious hand injuries when his hand got caught between the knife on the forme and the powered roller of the die cutter itself. This alert is based on information supplied to the Print Sector by PIAC.

1. How do these Machines Work? Typically, operators place a loose forme on the horizontal feed table, and then they place a board blank on top of it. The movement of the flat conveyor belts then feed the forme (and the board blank) between the powered rollers that press the board onto the blades/knives on the forme. The forme then emerges at the other side of the machine where the finished article and off cuts are removed. The process is then repeated.

2. What is the Issue?

2.1 On some machines, the reach distances through the feed opening to the intake between the forme and rollers may be inadequate. For example, on some machines, a horizontal trip bar in front of the feed opening may be so far above the bed of the table that it is still possible to reach the danger zone by reaching under it without it 'tripping'. On other machines supplied with fixed guarding (see photographs), it may be possible to reach the danger zone by reaching under the guard.

Roller Press Die Cutters – Examples of machines with unsafe reach distances

Example 1

Machines as supplied



Note: Two danger points, gap on machine feed allows hand / arm access, moving parts and belts under machine exposed



This is the style of machine also referred to as shearline, the problem again is the ineffectively guarded opening to the roller

2.2 We understand that some user companies, particularly in the corrugated sector, have had to fit tunnel guard extensions to achieve suitable safety reach distance at the feed and delivery end openings (and in some cases they have also fitted additional side guards to prevent access to the powered rollers from underneath the machine).

Roller press guarding examples

Example 1

For perspective the machine is 2.5m wide



Example 2

Surround guarding to prevent access to nips under conveyors



Example 3

Guards have been extended at the ends to allow movement in the centre part of the machine



3. What should you do? If you operate a Hand Fed Roller Die Cutting Press Machines, you should check safety reach distances at the in-feed and deliver areas, and also to check that there is no access to dangerous parts by reaching underneath the machine table. The solutions are likely to be relatively straightforward - for example longer tunnel guards at product feed and delivery ends and fixed guards to prevent access underneath the machine, if necessary. However, be aware, the exact solution for any given machine will have to be determined from a machine/task specific risk assessment. There will not be a one size fits all solution.

4 Safety Reach distances are set out in BS EN 294:1992

Broadly speaking, to meet the standard, the part of the body at risk will be Arm up to junction with shoulder and the opening < 120mm so a safety distance of 850mm or greater will be required.