

Guarding CNC routers and machining centres

Woodworking Sheet No 22

Introduction

This information sheet is one of a series prepared by HSE's Woodworking National Interest Group in agreement with the Woodworking Machinery Suppliers Association.

Computer numerical control (CNC) routers and machining centres can be hand loaded or automatically fed. They are designed to work on wood and may also work on plastics and light alloy metals.

The standard of safeguarding outlined in this Information Sheet is also applicable to point-to-point boring machines which are capable of being fitted with routing cutters and which are used for profiling operations.

Dangers

Each machine has its own characteristics and configuration which should be considered when identifying the hazards and assessing the risks, but all of the following hazards will need to be considered:

1. ejection of the workpiece or cutter;
 2. contact with rotating cutters;
 3. trapping and crushing caused by moving tables or machining heads;
 4. unexpected movement or start-up caused by faults in the control system¹;
 5. excessive noise emission; and
 6. the production of dust and chippings.
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Safeguarding

As the control systems on routers have developed from manual control to CNC, so the degree of operator intervention during the machining process has decreased. The addition of automatic loading and unloading facilities and automatic tool changing further reduce the need for close approach to the cutting area. This enables the manufacturer to adopt safeguarding methods that differ from those used for manually operated machines.

Access to the cutting area during the machining process should be prevented by enclosure or other effective means. Where access into an enclosure is necessary for loading/unloading the workpiece, for cleaning, setting or adjustment, or for tool changing, then access should be via a door which is interlocked so that it is not possible to gain access while the cutters and other dangerous parts are moving. The interlocking system should be at least of the single control system type².

In situations where infrequent access is required, for example, for maintenance operations, then a fixed guard should be used².