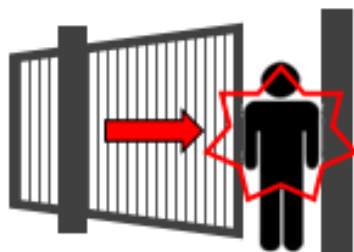


Explanation of common powered gate hazard types

Crushing – Exists in any reducing gap <500mm

A crush hazard can affect any part of the body, from fingers, toes and feet, to heads, torso and limbs. Therefore, it is important to ensure all reducing gaps, regardless of their size, are controlled effectively.



Crush hazards are the leading cause of serious injury or death on powered gates during normal use. They can exist in various locations, such as hinges, main edges and underneath gates.

Control options: hold-to-run, safe edge force limitation, inherent force limitation, light grids (sliding gates), laser scanners (all gates). Force limitation means that the gate will retract on contact within the force/time values allowed by EN 12453. Light grids or laser scanners means that contact with hazardous movement is not possible.

Impact – Contact with a moving leaf outside of a crushing zone

An impact hazard exists anywhere contact can be made with a moving leaf outside of crush hazards. Impact hazards must be controlled, and the same solutions available for crush hazards can be used. While they may not seem serious, they can cause injury in themselves, or cause a person to fall, either injuring them directly, or exposing them to other hazards on the gate.



Control options: run back enclosure (for impact hazards during opening) hold-to-run, safe edge force

limitation, inherent force limitation, light grids (sliding gates), laser scanners (all gates). Force limitation means that the gate will retract on contact anywhere in the swept area, within the force/time values allowed by EN 12453. Light grids or laser scanners means that contact with hazardous movement is not possible.

Shearing – Where a moving part causes a guillotine effect

A shear hazard exists anywhere a person can experience a scissoring action on a powered gate, as seen in the diagram. This can result in broken arms, broken legs etc and must be controlled effectively. It can also affect fingers, which are often overlooked.



Control options: run back enclosure, hold-to-run, safe edge force limitation, light grids (sliding gates). Force limitation means that the gate will retract on contact within the force/time values allowed by EN 12453. Light grids means that contact with hazardous movement is not possible.

Drawing-in – Where movement pulls a body part into a gap

Similar to a shear hazard, and often exists in the same area. Draw-in hazards arguably cause injury more often than shear hazards but may not be recognised and consequently controlled ineffectively. Resulting injuries could include broken limbs, crushed torsos, bruising and even death.



Positioning of control measures is critical to achieving safety, and incorrect positioning often results in additional injury.

Control options: run back enclosure, hold-to-run, safe edge force limitation, light grids (sliding gates). Force limitation means that the gate will retract on contact within the force/time values allowed by EN 12453. Light grids or laser scanners means that contact with hazardous movement is not possible.

Cutting – Hazards caused by sharp protrusions

Control options: removal of sharp and protruding edges, enclosures, light grids or laser scanners.

Hooking – Hazards where clothing could snag on a moving leaf

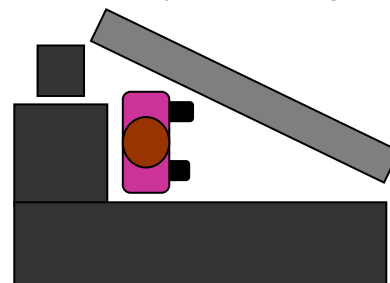
Control options: removal of sharp and protruding edges, enclosures, light grids or laser scanners.

Imprisonment – Where movement closes off a means of escape

Does not cause injury in itself, but prolonged exposure to imprisonment hazards can have serious consequences. Can be as simple as the diagram but

can be extremely serious where a gate lies across a fire escape route, where breakdown of the gate

would prevent safe egress. Often exists in underground car parks, where no other form of safe egress is provided.



Control options: alternative route or manual release. Beware of restricting emergency egress routes, consult Approved Document B.

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