



AUTOMATIC GATES



GUIDANCE FOR **INSTALLERS**

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AUTOMATED GATES – GUIDANCE FOR INSTALLERS

Any installer, who is called upon to undertake a new automated gate installation – or maintain an existing installation, has a clear duty of care to deliver a safe and legally compliant gate.

Aside from the moral responsibility to take steps to ensure the gate does not represent a safety hazard to users / members of the public, recent case law has reinforced the accountability of the installer (as well as other key duty holders) by imposing significant fines on companies that have been found guilty of breaching safety laws.

The court proceedings following the death of Karolina Golabek in an automated gate accident in 2010 sent out a powerful message to the industry, highlighting the additional legal and financial implications for a failure to observe the safety guidance that is in place. Both

the company that installed the gate and the company responsible for the maintenance of the gate were fined (a total of £110,000 with an additional £80,000 in court costs) for breaching safety laws. Clearly this represents a major financial loss but in addition consideration must be given to the potentially even greater cost in terms of the irreparable damage to reputation.

This document provides a snap shot of the critical issues impacting upon the safety of an automated gate and the steps that need to be taken to mitigate against the risk of a potentially fatal accident.

Type of gate

Automated gates come in a variety of configurations: swing, sliding, bifolding or telescopic. Automated swing gates offer the most cost effective solution and are the easiest of all automated gates to install. However, a swing gate will be more adversely affected by windy conditions so care needs to be taken to ensure that wind load factors are taken into consideration. A swing gate may also be problematic if the driveway is sloping. Sliding gates will not be affected by wind loading issues and if installed correctly are very reliable, especially if they are a cantilevered system without a track. Sliding gates also represent the ideal solution for a sloping entrance into the site.

All automated access points should feature a separate independent gate to allow for pedestrian access.



Type of gate operator

AA swing gate functions using either a ram, underground or crank arm operator. Ram operators will ultimately offer the most 'powerful' solution to opening and closing the gates but because of the crushing hazards associated with this style of operator (especially if the gate is opening against a solid object) care must be taken to incorporate the necessary safety features to avoid an accident. Swing gates fitted with a ram operator are also easier to maintain because the operating equipment is not buried underground and is therefore easier to access. Although common practice is to position the ram at about waist height, the most sensible place to site the ram would be at the top of the gate, provided the gate is of a sufficient height to prevent being reached by young children's fingers.

An underground operator clearly has the advantage of not detracting from the aesthetic charm of the actual

gate but the gate owner should be aware of the expense associated with installing this type of operator, in addition to the added complications in terms of maintenance due to the limited access.

A crank arm operator is typically suited to moving larger gates and acts like a pair of scissors when opening and closing so special attention needs to be paid to ensuring the safety of this type of operator.

A sliding gate is typically operated by a rack and pinion mechanism. Attention should be paid to the support rollers and these must be made in such a way as to reduce a drawing in hazard. Both the support rollers and the motor drive should feature some kind of physical protection around the support posts.

Site conditions

When installing a gate the site should ideally be level throughout the travelling distance of the gate. To prevent possible attempts by an intruder, the gap under the gate should not be more than 100mm. If this cannot be achieved further safety devices may be required to ensure the gate's safe operation and to prevent reducing gaps under the gate from creating a further hazard.



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Method of entry and exit

There are a variety of methods, which might be employed to gain access to premises using automated gates. The degree of security provided by the gate will be largely dictated by the method of entry and this in turn will have an impact on the safety requirements of the gate, see the table below.



Type of Entry / exit	Control over security	Safety required
Ground loop	1	Maximum
Push button	1	Maximum
Radio remote control	2	Maximum
Digital keypad	2	Maximum
Coded card reader	3	Maximum
Audio/video intercom	3	Maximum
Biometric card reader	4	Maximum
Automatic Number Plate Recognition	4	Maximum
Automatic Number Plate Recognition with secondary security check (e.g biometric)	5	Maximum
Guard house with remote control intercom	4	Maximum
Guard house with hold to run control	4	Minimum
Guard house with hold to run and airlock	5	Minimum

KEY: 1 – None 2 – Minimal 3 – Fair 4 – Good 5 - excellent

Safety recommendations

Before an automated gate is installed, a full multiple risk assessment should be undertaken by the installer, to identify all the potential risks associated with the gate. The installer should then put in place measures to eliminate or substantially reduce the likelihood of an automated gate accident occurring.

All automated gates should be installed with at least two different type of safety devices / features to protect gate users from the risk of injury or worse, as a result of becoming trapped by the gate. As the leading and original campaigner for improved standards of safety for automated gates, Gate Safe recommends the use of photocells (or light curtains) and pressure edges on all gates that are automated. However, the person who takes responsibility for installing these devices must possess the appropriate knowledge to understand WHERE the devices should be sited to mitigate or eliminate the risk. The installer must also have a clear

understanding of how to select the correct pressure edges to ensure that they are capable of effectively stopping and reversing the gate when an object / person is detected.



Additional factors influencing gate safety

In addition to the general automated operation of the gate and the risks associated with this, there are some physical factors pertaining to the gate itself or the siting of the gate, which may influence its overall safety.

If the gate is not solid (whether it is a swing or sliding gate), mesh is frequently used, as the infill for the gate. This poses a risk in that people may try and climb the gate or reach through the mesh. If someone reaches through the mesh, the risk of entrapment must be considered. Similarly there is a need to safeguard against the risk of someone slipping and falling whilst the gate is in operation.

Vertical pales featuring on any automated gate are required to feature a maximum gap of 100 mm between the pales to minimise the risk of whole / part body entrapment.

Swing gate hinges must be fitted so that there are no reducing gaps as the gate opens and closes. If there are closing gaps, these should be protected by shrouds or electronically (ie using pressure edges). The failure of a swing gate hinge must not create a situation, which could potentially lead to the gate falling, ie the failure of one component should not jeopardize the safety of the whole gate.

Gate posts must be sufficiently strong and correctly bedded into the ground to support the overall gate structure. The foundations into which the gate is installed must be adequate and consistent with the specific ground

conditions for the site. For example a sandy type soil will require a deeper foundation than a stony soil.

The siting of any control equipment (push button or key switch) should be such that a person cannot put their arm through the gate to start the operation. Control equipment should always be on both sides of the gate, a minimum of 1500 mm away from the gate or shrouded to prevent activation from the wrong side of the gate.

Objects which might obscure the photocells' ability to detect movement will also influence the safety of the gate. Snow, a build of leaves or general debris can therefore represent a further potential safety hazard by sending a false message to the gate controller that a person / vehicle is trying to enter the premises.

All automated vehicle access points should feature a separate independent gate to allow for pedestrian access. Where the pedestrian gate is located next to the vehicle gate, there should be fencing or a guard rail to ensure that pedestrians are kept away from the main gate during its operations.

Automated gates should feature a lockable IP rated control cabinet, visual and / or audible warnings and signage. The electrical connection into the mains must be tested by an electrician qualified to 17th edition of BS EN 7671, with at least 3 years experience and fitted in accordance with Part P of Building Regulations 2000 for domestic installations.

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Adapting an existing automated gate

If an installer is called upon to make adjustments to a gate that is already powered, for example installing an intercom system or an electronic card reader in legal terms they assume responsibility for its safety and are potentially liable for prosecution in the event of an accident.

Automated Gate handover

All automated gates are legally required to be CE marked to demonstrate that they comply with the EU Machinery Directive. In addition all gates must be supplied with a Declaration of Conformity, issued by the Responsible Person (normally the manufacturer) declaring the product's conformity. As an installer you should be aware that just because a gate is CE marked it is not necessarily safe...

Once the gate has been installed the installer should provide a handover pack that will include:

- Location of control cabinet keys and manual release keys
- Detail of how to put the gate into manual operation
- Key contacts
- Maintenance log book

In addition to this key personnel at the site should also be given a comprehensive briefing on how to use the gate, witness a demonstration on how to place the gate in manual operation and be provided with details of the weekly checks that need to be carried out to ensure the gate continues to operate correctly and safely.

Automated gate kits

Automated gate kits which transform a manual gate into a powered gate 'machine' are now readily available online. Installers should shun any automation kits that feature the minimal safety equipment and no training guidance. Such kits are simply perpetuating the risk of another accident occurring. If an automated gate kit does not carry the correct safety features installers should refuse to fit it and report the supplier to Trading Standards.

Maintenance matters

All automated gates require routine maintenance. The gate should be checked over by a **qualified** installer every six months as a minimum. Most reputable installers will supply an automated gate with a warranty of a minimum of 12 – ideally 24 – months covering parts and labour.



Training for installers

Installers who work on automatic gate installations should undertake specialist training to understand the protocol required to ensure a safe and compliant automated gate installation – and to protect themselves and their businesses from the risk of costly litigation, which could potentially follow a non-compliant installation.

Gate Safe has developed an IOSH accredited Gate Safe Aware training course, a half day session delivered in plain English designed to provide delegates with a practical and comprehensive overview of the current standards / safety guidelines pertaining to automated

gates. Delegates who pass the training receive an ID card and a guidance manual to provide an ongoing reference source. In addition installers are entitled to access to the established Gate Safe Aware Installer logo / an entry on the Gate Safe Aware Installer database (found on the Gate Safe website, (www.gate-safe.org)) which promotes the appointment of professionally trained installers to undertake all works on an automated gate.

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Important contacts

Gate Safe www.gate-safe.org / info@gate-safe.org / 01303 840 117

Health and Safety Executive: www.hse.gov.uk/work-equipment-machinery/power-gates/introduction.htm

Glossary of terms

For a full glossary of automated gate related terms, visit the Gate Safe website, www.gate-safe.org.

Gate Safe working together with IOSH

GATE SAFE IS PROUD TO BE SUPPORTED BY THE FOLLOWING ORGANISATIONS



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