

Four Ways to Solve Your Hinge Protection Problem

“£20k fine for council after boy, 6, loses fingertips on school gates...” that was the headline on the Manchester Evening News in April 2014. Although the child survived, he now has “reduced use of his hand and amputation injuries.” Making matters worse, the risk assessment in place at the time advised staff to be vigilant, but simple plastic hinge guards could have been installed with little cost and prevented the accident. Incidents like this are still occurring all too frequently.

Fortunately, since publication of the above article, the gate and barrier industry has greatly improved in identifying and providing guidance on how to address this often-overlooked issue. The best time to consider solving your hinge protection problem is whilst installing an automated swing gate, or retro-fitting automation to an existing gate.

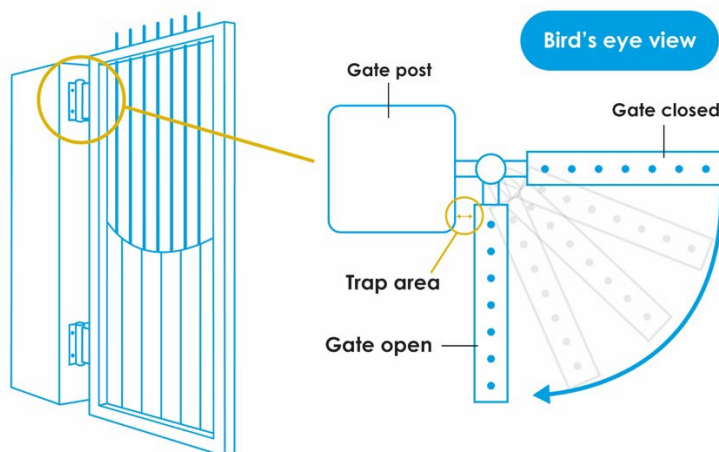
According to DHF, “reducing gaps at the hinge area can generate a very high force. Access to a reducing gap at a hinge area is possible from a variety of directions.”

In this article we highlight the four best ways to protect against these reducing gaps.

1. Design out the hazard

The first question to ask, especially during the initial installation of a gate, is “can the hazard be avoided by safer hinge design?” Figure 1 shows a problematic, yet typical, gate installation. In the bird’s eye view, you can see the hazard highlighted in the “trap area.”

Figure 1:

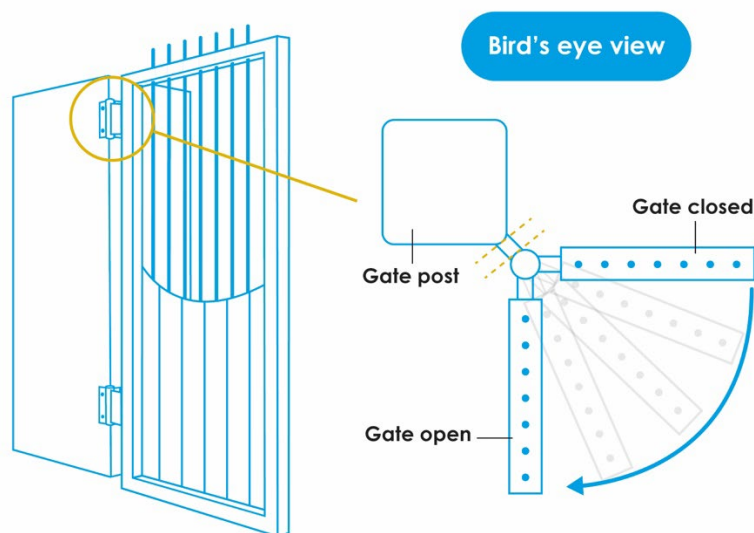


Reducing gaps at the hinge area should be avoided by safe design wherever possible. Safe design hinge criteria should be:

1. Less than 4mm or more than 25mm of gap
2. A maximum gap-change of 20% is permissible only when the constant gap is larger than 25mm, but less than 100mm. This means the only parts of the body that will fit in the gap will not be injured by a 20% reduction.

Figure 2 shows how the hinge could be moved to the corner of the gate post to eliminate the trap area altogether, obviating the need for additional hinge protection measures - so long as any of the gaps or gap-changes fall within the guidelines above.

Figure 2:



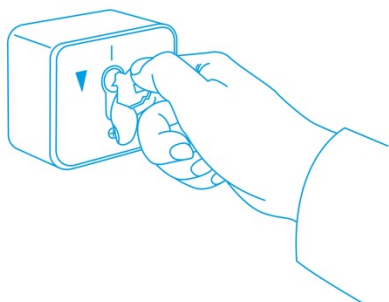
Sometimes, it's simply not possible to “design out” the hinge hazard, especially if working with an existing gate installation. In which case, one or more of the following measures should be applied.

2. Hold-to-run

When a gate is operated via “hold-to-run” device, the safety is in the hands of human control. The gate or barrier should only move when *sustained* pressure is applied to the activation device such as a key switch or similar. Per DHF standard guidelines, “the leaf should not travel more than 100mm on release of the activation device and activation should only be possible in such a position that allows full, direct and permanent real-time view of the gate leaf movement and ensures that the person controlling the gate or barrier is not in a hazardous position.” This should be performed by a trained user, and video cameras are not sufficient – the user must physically see the gate movement during operation. Key switches are commonly used to prevent untrained users accessing the controls.

Figure 3 shows an example of a “hold-to-run” device that could be used to operate automatic and powered gates to address hinge hazards.

Figure 3

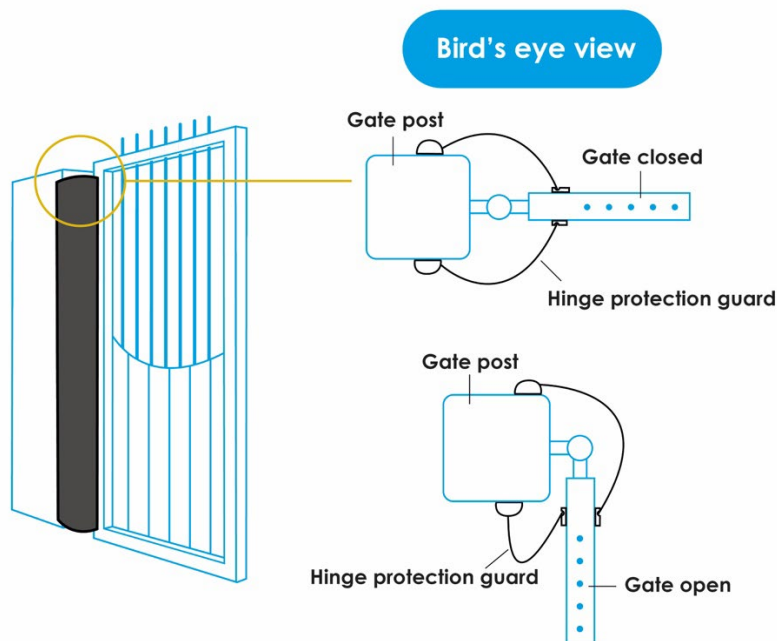


3. Mechanical Hinge Guards

There are a variety of these types of solutions available on the market today. They provide a low-tech and cost-efficient solution for hinge protection.

Fixed hinge guards could not be simpler (figures 4,5): a strip of EPDM or TPV flexible rubber-like material is clamped by two pieces of aluminium to the surface of the gate or piers. This shields the hinge and prevents people from getting hands or fingers trapped in this closing space. The great advantage is how simply and reliably it solves a problem that could only be remedied by the costly re-manufacture of the gate hinges.

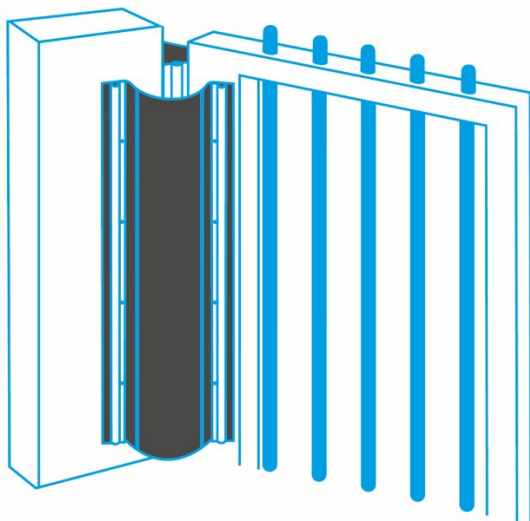
Figure 4:



Available in varying size options or on a roll they can be easily cut to size on site and quickly and easily fitted to almost any swing gate installation. These systems fit butt-hinged or centre-pivot doors and gates and are suited to demanding commercial and industrial environments.

These flexible guards should be durable, cover the entire hazard, and be robust enough to ensure they do not fold into the reducing gap. They will also need to be removable by key or tool for inspection and maintenance of hinges within the guarded space.

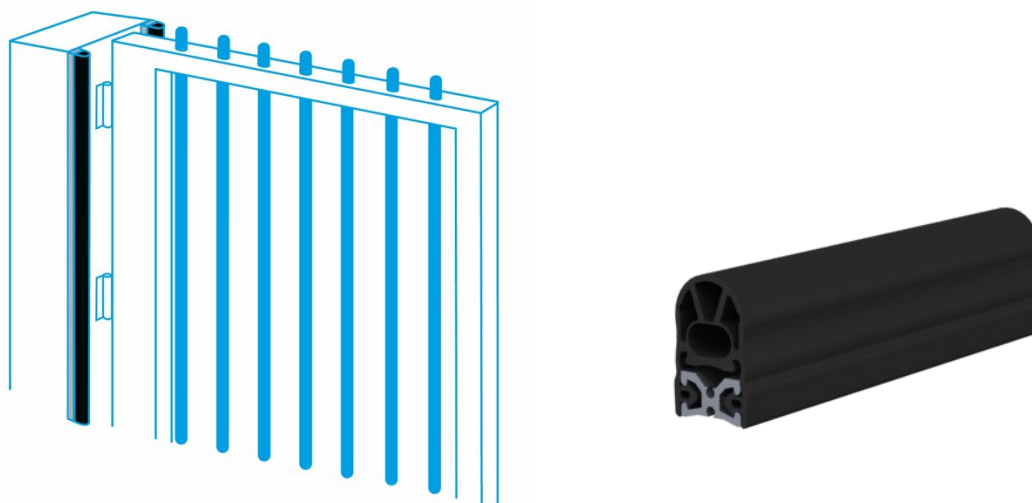
Figure 5:



4. Safety Edges

Safety edges (figure 6) can be utilised to protect any reducing gaps on your gate and, unlike a mechanical guarding solution, are fully monitored should there be any issue with vandalism/mechanical damage or in the event an edge should fail for any reason. Safety edges are available in sizes from 8mm upwards and offer a neat, fully monitored hinge protection solution, albeit at a slightly higher cost to a mechanical solution.

Figure 6 (BBC Bircher Smart Access' S-Coverline safety edge shown):





Don't be left exposed to potential legal action: when dealing with gates and doors, always pay attention to any reducing gaps in the hinge area. If you see any potential hazards, using one of the four solutions listed above should help reduce your liability (always follow risk assessment recommendations).

View our Hinge Protection Range online, where you can also Live Chat with us for any technical support needed: <https://www.in2access.co.uk/collections/hinge-protection>

Or email: sales@in2access.co.uk