GATE SAFETY BY DESIGN

The truth behind force testing

Gate Safety by Design™

1

It is not a legal requirement to force test an automatic gate.

True. But it is a legal requirement for the gate to be safe whilst in use.

2

An automatic gate that passes the force testing requirements will not necessarily be safe.

True. There are a number of current standards which are relevant to powered gates. Adherence to these standards alone may not ensure that all of the mandatory Essential Health and Safety Requirements (EHSRs) of the Supply of Machinery (Safety) Regulations 2008 are met - source hse.gov.uk.

3

Force testing will not protect a person from the extreme force at or near the hinge end of a swing gate.

True. This can be explained as follows: A 4m gate that has a force of 400n at the end will have a force of 800n at 2m from the hinge, doubling to 1600n at 1m from the hinge and a force of many thousands of newtons around the hinge position.

4

Even if a gate passes the force testing requirement, 400n, this may well still be enough to injure a child or frail individual.

True. Published research (Mewes & Mauser 2003 Safeguarding Crushing Points by Limitation of Forces International Journal of Occupational Safety and Ergonomics (JOSE) 2003 Vol 9 No 2 177-191) suggests that the maximum impact forces permitted by the standards may not always be appropriate for the most vulnerable members of society.

5

Force testing will not give adequate protection for the drawing in risks on a sliding gate.

True. The drawing in risk between a sliding gate and its support post will be enough to cause serious injury but will not necessarily activate the force testing control.

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The logic is flawed when allowing a person to be subject to a force of 1600n 501mm from the end stop and 400n at 500mm.

6

True. The standard allows for a force of 1400n when the gate is greater than 500mm from the stop position which would cause serious injury especially to someone young or infirm.

7

When force testing against a pressure edge the results will vary significantly depending on the temperature.

True. In very cold temperatures the edges will become stiffer so will become more resistant before activating.

All of the above is based on ideal weather conditions and does not take into account the effect of the wind on the gate.

On a solid gate high wind conditions could increase the force very substantially transforming what was deemed to be a safe gate into a very dangerous installation. Therefore, the logical conclusion is that non-contact devices (photocells, light curtains, laser scanners) should be used as the first line of defence, backed up with safety edges.