Test report summary

Smart Fix Door 1600 joules

with Fortress interlock amGard Pro

Report No. TR-14-016

Date: 2014-11-19

Place: Troax Test Center

Purpose

To document the effect of a high energy impact test from inside the hazard zone with a Smart Fix hinged door, the 60x40 post and the ST30 mesh panels and equipped with an amGard Pro switch solution from Fortress Interlocks.

Test material

Panel: ST30 2050x1000

Post: Standard post 60x40

Fixing: Smart Fix hinge

Door lock: Fortress amGard Pro

Floor fixing: Bolted to the test rig

Test procedure

The test was performed in accordance with the pendulum test method stated in ISO 14120:2015 Annex C. Panels and posts were assembled with the Smart Fix system and fastened to the test rig with M10 bolts. The pendulum of 100 kg was adjusted so the impact hit the panel at 1446 mm above the floor, i e 1316 mm from the bottom of the panel (with a 150 mm floor gap). To reach the energy of 1600 J the 100 kg pendulum was raised 1629 mm from the starting point.

Impact energy

Pendulum mass: 100 kg

Pendulum speed: 20 km/h

$$E = \frac{mv^2}{2} = \frac{100*(\frac{20}{3,6})^2}{2} = 1543\ J$$

$$E = mgh = 100 * 9{,}82 * 1.629 = 1600\ J$$

Results

The Smart Fix door and the lock withstands the high energy impact. The door panel and the posts absorb all energy and obtain a remaining deformation. The deflection of the door panel was approximately 439 mm in the upper corner and 331 mm in the centre. Despite the high energy impact there was no penetration and no parts departed. The Fortress lock remained intact.

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