**VECU-STOP®**

**CRASH CUSHION SYSTEMS**

*VECU-STOP®* crash cushion model P100/2:14 at Charing Cross Underpass, M8 Glasgow

*VECU-STOP®* crash cushion model V100/5:12 at M80 junction, A50 north-bound

**safety is our business**

Successfully tested and approved to European Standard BS EN 1317 : part 3

Meets the requirements of the IRRRS

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**RANGE OF VECU-STOP® SYSTEMS**

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A Division of Hill & Smith Ltd.

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RANGE OF **VECU-STOP® SYSTEMS**

**Models 100**

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<tr>
<th>Model</th>
<th>L(m)</th>
<th>W(m)</th>
<th>θ(deg.)</th>
<th>L - base lengths</th>
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<td>V100/4</td>
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**Models 120**

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<td>V120/6</td>
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<td>21</td>
<td>100</td>
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</tbody>
</table>

**CRASH CUSHION SYSTEMS**

Meets the requirements of the IRRRS
Successfully tested and approved to European Standard BS EN 1317 : part 3

Safety is our business

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**PROTECTION FOR THE HIGHWAYS, THE EFFECTIVE SAFETY SYSTEM**

**VECU-STOP** crash cushion systems

The progressive concept of the **VECU-STOP** crash cushion system is based on more than forty years of experience in designing road restraint systems. All models of the **VECU-STOP** crash cushion system consist of hollow cylinders arranged in rows. They are highly effective energy and impact absorbing elements which are guided by a steel wire rope system. Once installed, the system elements of the **VECU-STOP** crash cushion do not require any maintenance.

Full corrosion protection is provided by a hot-dipped galvanized finish. All components are made of steel and may be completely recycled.

The usual method of anchorage is to install a pre-fabricated steel former, then fill it with concrete. Threaded anchorages welded to the reinforcing bars enable the crash cushion to be bolted straight into place, on the reinforced concrete foundation.

For head-on or side-on impacts, smaller cylinders mounted in panels and fixed to the back stop ensure maximum energy dissipation and containment. The wire rope is connected to the backstop and tensioned by the M36 nut.

The absorbing area in the centre does the main work of deformation in the event of side-on or head-on impacts. Every hollow cylinder has an individual deformation feature due to inserted filling elements (SF).

The deflector shields provide smooth gliding of a vehicle impacting on the side during redirection. All protruding edges are rendered safe by soft protection.

Rigid telescopic tubes near the nose of **VECU-STOP** allow the front cylinders to wrap around the errant vehicle keeping it stable. Thereafter the intermediate elements and cylinders fold progressively and absorb the remaining energy of impact.

The wire rope guidance system ensures that during head-on impacts **VECU-STOP** collapses in a controlled direction and during side-on impacts it ensures safe deflection of the cushion.

For head-on impacts **VECU-STOP** connects to Open Box Beam which can in turn, transition to Double Height Open Box Beams.

Connection and transition of the back-stop of the crash cushion to a profiled concrete protection wall by means of prefabricated special elements.

**VECU-STOP** model V100/4:14 crash test

These pictures demonstrate the installation (under construction) of seven **VECU-STOP** crash cushions, model V100/4:14, on the A90 / M90 Forth Road Bridge Toll Plaza. The formers are shown before and after the concrete fill.

Protection is needed for the toll booth personnel and booth structures. The reinforced base provides threaded anchorages for the back-stop and cable anchors, and if impacted will ensure that all energy from an errant vehicle will be dissipated by means of the cushion system without the cushion spreading outwards, thus preventing a secondary accident in the other bays.

**VESCU-STOP** model V100/5:6 crash test

Test at TRL on 04/08/2005; TC 4.3.110.

These pictures show the angle of impact at 15°, and the displacement of the cushion. Note how the car doors and windscreen remained intact, the doors could still be opened and closed, and both the driver and passenger compartments were unaltered.
**VECU-STOP® CRASH CUSHION SYSTEMS**

[Image of crash cushion system with dimensions and model details]

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**VECU-STOP® crash cushion model P100/2:14 at Charing Cross Underpass, M8 Glasgow**

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Meets the requirements of the 18885

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