VECU-STOP®

CRASH CUSHION SYSTEMS

VECU-STOP® crash cushion model V100/5:13 at Mearns junction, A726 north-bound

safety is our business

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

Certificate No. FS 82117

ASSET International
A Division of Hill & Smith Ltd.

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

VECU-STOP® crash cushion model V100/5:6 on A167M, Newcastle.

VECU-STOP® PROTECTION FOR THE HIGHWAYS, THE EFFECTIVE SAFETY SYSTEM

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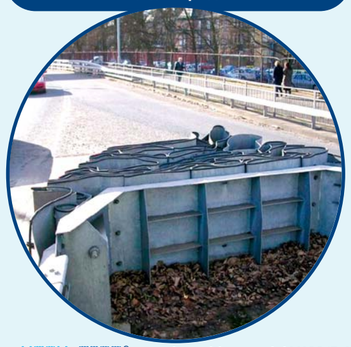
VECU-STOP® crash cushion model V100/5:6 at Ferry Road roundabout A814, Glasgow

VECU-STOP® crash cushion model V100/5:6 after impact.



VECU-STOP® crash cushion model V100/5:6 on the A739 Clyde Tunnel southern approach, after a heavy impact with a Peugeot 106 travelling at 60 mph. The driver walked away from the crash. Note that the crash cushion stays within the original envelope and that the back-stop is undamaged.

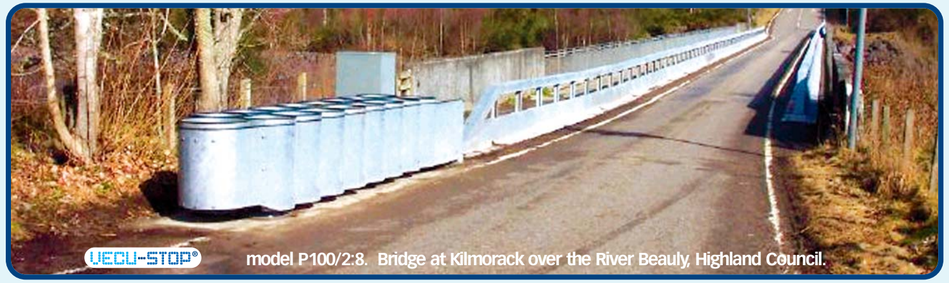
VECU-STOP® crash cushion systems

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 galvanised finish. All components are made of steel and may be completely recycled.

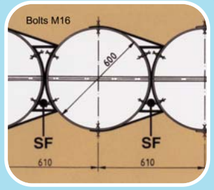
The usual method of anchorage is to install a pre-fabricated steel former, then fill it with concrete. Threaded anchorages welded to the reinforcing bars enable the VECU-STOP® crash cushion to be bolted straight into place, on the reinforced concrete foundation.



VECU-STOP® model P100/2:8. Bridge at Kilmorack over the River Beauly, Highland Council.

The cushion cylinders are fixed to the back-stop via adjustable plates to give perfect alignment.

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.

VECU-STOP® connects to Open Box Beam which can, in turn, transition to Double Height Open Box Beam.

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

Forth Road Bridge Toll Plaza

These pictures demonstrate the installation (under construction) of seven VECU-STOP® crash cushions, model V100/3:13, on the A90 / M90 Forth Road Bridge Toll Plaza.

The formers are shown before and after the concrete fill.

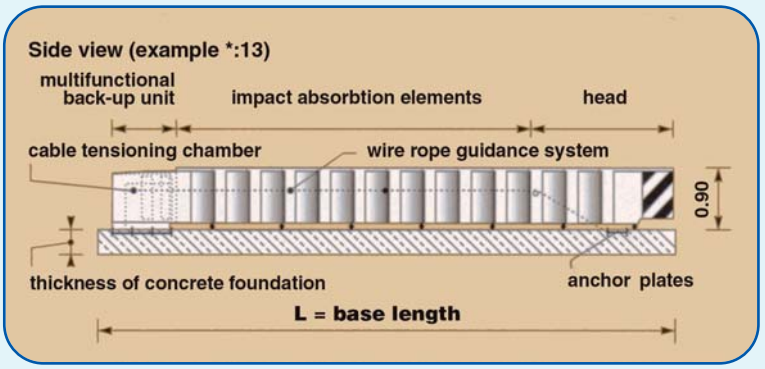
Protection is needed for the toll booth personnel and booth structures. The reinforced base provides threaded anchorages for the back-stop and cable anchors, and if impacted VECU-STOP®, will ensure that all energy from an errant vehicle will be dissipated by means of the cushion system without the cushion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

VECU-STOP® model V100/4:14 crash test

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

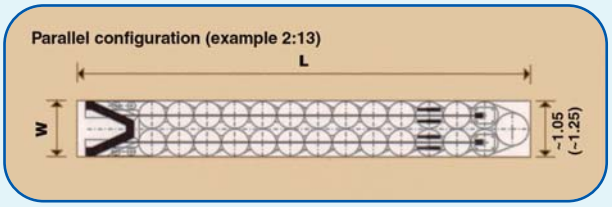
These pictures show the angle of impact at 15°, and the displacement of the cushion. Note how the car doors and windscreen remained intact, the doors could still be opened and closed, and both the driver and passenger compartments were unaltered.

RANGE OF VECU-STOP® SYSTEMS

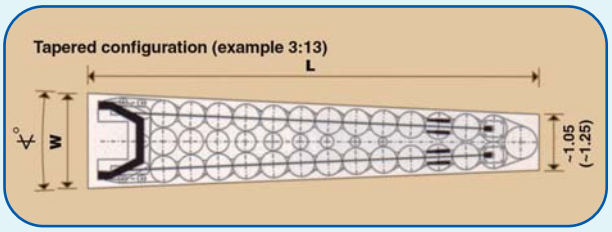


Models 100

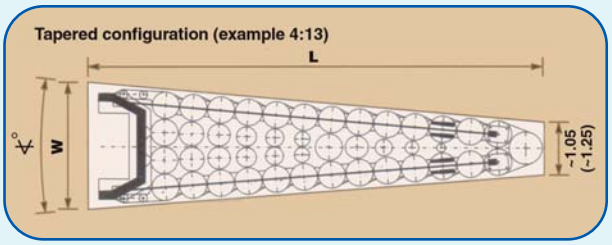
Models	L(m)	W(m)	∢°deg.	Level
P100/2: 6	4.80	1.05	-	50
P100/2: 7	5.30	1.05	-	50
P100/2: 8	5.80	1.05	-	80,80/1
P100/2: 9	6.30	1.05	-	80,80/1
P100/2:10	6.85	1.05	-	80,80/1
P100/2:11	7.35	1.05	-	100
P100/2:12	7.85	1.05	-	100
P100/2:13	8.36	1.05	-	110
P100/2:14	8.87	1.05	-	110



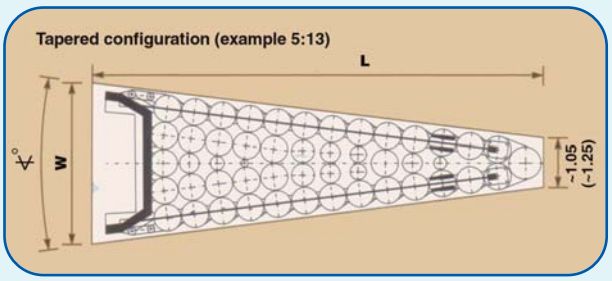
Models	L(m)	W(m)	∢°deg.	Level
V100/3: 6	4.80	1.93	11	50
V100/3: 7	5.31	1.87	10	50
V100/3: 8	5.77	1.83	8	80,80/1
V100/3: 9	6.28	1.80	7	80,80/1
V100/3:10	6.83	1.79	6	80,80/1
V100/3:11	7.34	1.78	6	100
V100/3:12	7.85	1.76	5	100
V100/3:13	8.36	1.75	5	110
V100/3:14	8.87	1.75	4	110



Models	L(m)	W(m)	∢°deg.	Level
V100/4: 6	4.79	2.75	23	50
V100/4: 7	5.30	2.65	19	50
V100/4: 8	5.81	2.57	17	80,80/1
V100/4: 9	6.32	2.52	15	80,80/1
V100/4:10	6.83	2.48	13	80,80/1
V100/4:11	7.34	2.45	12	100
V100/4:12	7.85	2.42	11	100
V100/4:13	8.36	2.40	10	110
V100/4:14	8.87	2.38	9	110



Models	L(m)	W(m)	∢°deg.	Level
V100/5: 6	4.76	3.55	34	50
V100/5: 7	5.26	3.39	28	50
V100/5: 8	5.77	3.28	24	80,80/1
V100/5: 9	6.28	3.20	21	80,80/1
V100/5:10	6.79	3.13	19	80,80/1
V100/5:11	7.30	3.08	17	100
V100/5:12	7.81	3.05	16	100
V100/5:13	8.32	3.01	14	110
V100/5:14	8.83	2.99	13	110



Models 120

Models	L(m)	W(m)	∢°deg.	Level
P120/2: 6	5.35	1.25	-	50
P120/2: 7	5.95	1.25	-	50
P120/2: 8	6.60	1.25	-	80,80/1
P120/2: 9	7.20	1.25	-	80,80/1
P120/2:10	7.80	1.25	-	80,80/1
P120/2:11	8.40	1.25	-	100
P120/2:12	9.04	1.25	-	100
P120/2:13	9.65	1.25	-	110
P120/2:14	10.25	1.25	-	110

Models	L(m)	W(m)	∢°deg.	Level
V120/3: 6	5.31	2.22	12	50
V120/3: 7	5.92	2.17	10	50
V120/3: 8	6.53	2.14	8	80,80/1
V120/3: 9	7.14	2.11	7	80,80/1
V120/3:10	7.79	2.10	6	80,80/1
V120/3:11	8.37	2.08	6	100
V120/3:12	8.97	2.07	5	100
V120/3:13	9.58	2.06	5	110
V120/3:14	10.21	2.05	4	110

Models	L(m)	W(m)	∢°deg.	Level
V120/4: 6	5.30	3.13	23	50
V120/4: 7	5.91	3.03	19	50
V120/4: 8	6.52	2.95	16	80,80/1
V120/4: 9	7.17	2.92	14	80,80/1
V120/4:10	7.75	2.82	13	80,80/1
V120/4:11	8.41	2.83	11	100
V120/4:12	9.00	2.80	10	100
V120/4:13	9.61	2.80	10	110
V120/4:14	10.20	2.77	9	110

Models	L(m)	W(m)	∢°deg.	Level
V120/5: 6	5.26	3.96	34	50
V120/5: 7	5.86	3.90	28	50
V120/5: 8	6.47	3.76	24	80,80/1
V120/5: 9	7.08	3.59	21	80,80/1
V120/5:10	7.69	3.64	19	80,80/1
V120/5:11	8.30	3.56	17	100
V120/5:12	8.91	3.52	16	100
V120/5:13	9.53	3.49	14	110
V120/5:14	10.20	3.48	13	110

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