

JEROL LAUNCH THEIR High Energy “HElix” SIGN POST

It started with a conversation over a coffee between Howard Luther, MD of Post & Column Co and Rolf Jernstrom the MD of Jerol and the developer of JEROL passively safe post system.

Howard recalls that he mentioned to Rolf that it would be very useful to have a High Energy absorbing post available for use in urban environments but that perceived expert opinion was that a HE sign post would never be possible, due to the fact that sign posts are generally lower in height than lighting columns and don't have the length to absorb the impact. “That's if you use existing thinking” replied Rolf, “let me think about it”

Some months later Howard received a call from Rolf to say he had something to show him. It turned out that Rolf had indeed done the impossible and had designed a HE sign post. But the design would be worthless unless it passed its crash test as required by BS EN12767.

So in the summer of 2009 testing took place under the jurisdiction of Engineering Test Department of Helsinki University of Technology (HUT).

The tests were undertaken on 140mm, 168mm & 219mm diameter posts and were completed at 70 kph. The posts performed exactly as Jerol had predicted and the impact vehicle was brought to a complete stop. The 168mm post was then subsequently tested at 35 kph and after evaluating all the data the 140mm post was given a classification of 70:HE:2 and the 168mm post was 70:HE:1 (the 219mm low speed test will be carried out in the Spring 2010)

WHY H.E.

As stated in BS EN 12767:2007, energy absorbing (HE) posts “slow the vehicle considerably and thus the risk of secondary accidents with structures, trees, pedestrians and other road users can be reduced”

This is also recognised in the UK National Annex which states that energy absorbing posts reduce the risk of secondary incidents and collisions with NMUs, as the vehicle exit speed is lower.

To assist scheme designers the National Annex published a table (NA 1) which sets out the recommended performance class recommendation for different types of roads.

Table NA 1 Performance class recommendations

Situation	Location	Type of support structure		
		Lighting column Classifications listed (a), (b), (c) etc are in order of preference ⁽²⁾	Sign or signal support ⁽¹⁾ Classifications listed (a), (b), (c) etc are in order of preference ⁽²⁾	Non-harmful support structures
Non-built up all-purpose roads and motorways with speed limits > 40 mph	Generally in verges of motorways, dual carriageways and single carriageway roads	100:NE:1-3	100:NE:1-3	100:NE:4
	With significant volume of NMUs ⁽³⁾ at the times when impact events occur	100:HE:1-3	(a) 100:HE:1-3 ⁽⁴⁾ (b) 100:LE:1-3 ⁽⁴⁾ (c) 100:NE:1-3 ⁽⁴⁾	100:NE:4
	Where major risk of items falling on other carriageways (i.e. below, or at grade separated interchanges)	100:HE:1-3	(a) 100:HE:1-3 ⁽⁴⁾ (b) 100:LE:1-3 ⁽⁴⁾ (c) 100:NE:1-3 ⁽⁴⁾	100:NE:4 or 70:NE:4
Built up roads and other roads with speed limits ≤ 40 mph	All locations	(a) 70:HE:1-3 (b) 100:HE:1-3 (c) 70:LE:1-3 (d) 100:LE:1-3	(a) 70:HE:1-3 ⁽⁴⁾ (b) 100:HE:1-3 ⁽⁴⁾ (c) 70:LE:1-3 ⁽⁴⁾ (d) 100:LE:1-3 ⁽⁴⁾ (e) 70:NE:1-3 ⁽⁴⁾ (f) 100:NE:1-3 ⁽⁴⁾	100:NE:4 or 70:NE:4
<p>(1) Can include other supports for items of similar weight to that of the item supported in the test, such as variable message signs and speed cameras</p> <p>(2) Subject to the availability of compliant products which meet the specific needs of the particular situation</p> <p>(3) Non-motorized users</p> <p>(4) Category NE can be accepted in any situation where the standard steel posts defined as 'deemed to comply' in Annex F are used</p>				

As the table confirms, for built up roads with speed limits up to 40 mph the recommended classification is 70:HE:1-3. Therefore the HElix post meets this requirement.

The Technology.

A typical non energy (NE) JEROL post is made from a composite material and designed to shear upon impact. The HElix post is fitted with a patented speed restraint system which prevents the post from shearing and in doing so slows the impact vehicle down to a standstill within the length of the post. This is very important on built up roads where the preference is to prevent the errant vehicle and or the displaced post from colliding with pedestrians and other roadside structures. The clever part of the technology was to achieve this speed reduction but also to avoid damage to the windscreen and roof of the vehicle during impact. Traditionally some High Energy absorbing poles had caused severe roof deformation during impact and there was widespread concern that such deformation could cause severe injuries to vehicle occupants, so much so that when the UK National Annex to BSEN12767 was amended in October 2009, the UK took the lead and Clause NA.3 now makes certain recommendations regarding roof deformation.

A series of presentations is now being organised by Post & Columns and Jerol to explain the benefits and properties of the HE post and to show the film footage from the crash tests.

The Future

Already Rolf is turning his attention to the next phase of passively safe post development. "It's the thing I like about working with Jerol" states Howard Luther, "they are constantly innovating and working on ways to improve the way that passive products behave and how safety can be improved even further"



VEHICLE AFTER CRASH TEST(No windscreen or roof damage)



VEHICLE BEFORE, DURING & AFTER IMPACT