

## SUMMARY

### Test Agency

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### Product

Designation ER:1407 PAS 68-25/40 Single Bollard  
Drawings Supplied 7<sup>th</sup> October 2009  
Installation of Foundation (Date) 29<sup>th</sup> June 2009  
Installation of Product (Date) 22<sup>ND</sup> February 2010

### Test Vehicle

Make/Type Leyland DAF 45 Curtain-side  
VIN XLRAE45BFOL237162  
Kerb Weight 4760  
GVW 7500

### Impact Specification

	Target	Achieved
Mass (kg)	7500	7500
Speed (km/h)	64	63.1
Angle (deg)	90	90.3
Energy (kJ)	1185	1152

### Product Result

Bollard bent to 41.3deg and outer shell shattered and detached. Vehicle halted and disabled and on its left hand side.

### Penetration

Dynamic Vehicle Load-bed Penetration (m)	8.7
Static Vehicle Load-bed Penetration (m)	8.7
Dispersion of Debris (m)	No debris

### Manufacturer

Marshalls Mono Ltd, Birkby Grange  
Birkby Hall Road, Huddersfield, HD2 2YA

#### PAS68:2010 Performance Classification – Vehicle impact Test

Performance Classification: V/7500(N2)/64/90:8.7/0.0

**Note: not given for load-bed penetration > 25m**

Product Type	Single Bollard
Test Mass (kg)	7500
Test Speed (km/h)	63.1
Vehicle Penetration (m)	8.7
Dispersion of Debris (m)	0.0
Engine Running post test	No
Vehicle Driveable Post test	No
Follow-on vehicle could pass barrier	No