



A guide to the

# BS EN 12642-XL

Load Containment Standard

230706

## What is Positive Fit?

Any gap between the load and the side curtains must not exceed 80mm.

The load must be positioned up to the front bulkhead and the gap at the rear must not exceed 300mm.

Any load with a gap at the rear greater than 300mm must be restrained with a net or other means to prevent rearward shift.

## Introduction

This document is an interpretation of the 30 page BS EN 12642:2016 (L & XL) standard, designed to enable a quicker and easier understanding of the content and its implications.

Whilst the standard covers both the L and XL ratings, this guide only serves to cover the more demanding and higher rated XL version.

## What is EN 12642-XL?

EN 12642-XL is a whole-body, European load containment standard. Under strict controls, a reinforced vehicle body (either trailer or rigid bodywork over 3,500kgs GVW) is tested by an accredited body such as the German TUV or the UK VCA. If the bodywork passes the tests, a report and certificate will be issued together with the right to apply a compliance mark to the bodywork to indicate that the vehicle complies with the standard.

EN 12642-XL is applicable for both box van and curtainsided bodywork although it is more commonly specified on curtainsiders.

In the UK, EN 12642-XL is recognised as a contributory standard to load restraint but is not, in itself, a legal requirement. All individuals (consignor, operator or driver) responsible for load restraint are advised to seek further advice to determine the suitability and legal compliance of any load containment or load restraint system.

## Suitability

If being used as a load restraint solution, certain conditions must be met in order for EN 12642-XL to meet DfT/DVSA/HSE expectations.

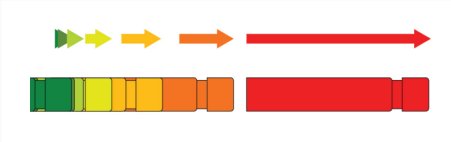
Under advice issued by the DVSA in September 2014, vehicles built with the European standard EN 12642-XL are 'deemed to comply' with the UK DfT Code of Practice, provided that the goods are loaded with a positive fit (see left).

If positive fit cannot be achieved at all times, EN 12642-XL ceases to be compliant and other DVSA-approved load restraint solutions must be considered such as the Don-Bur "LoadFix" system<sup>†</sup>.

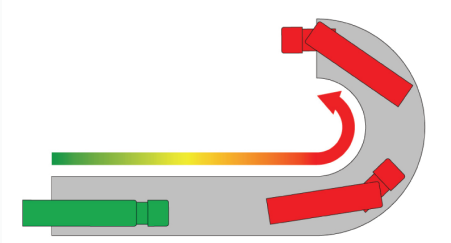
<sup>†</sup> Separate "LoadFix" brochure available.

## Manoeuvres

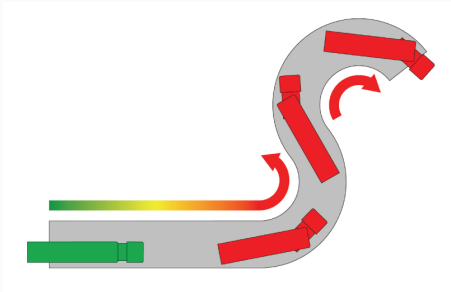
Braking



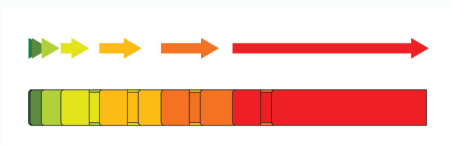
Transverse Acceleration



Change Of Lane Test



Reverse Braking



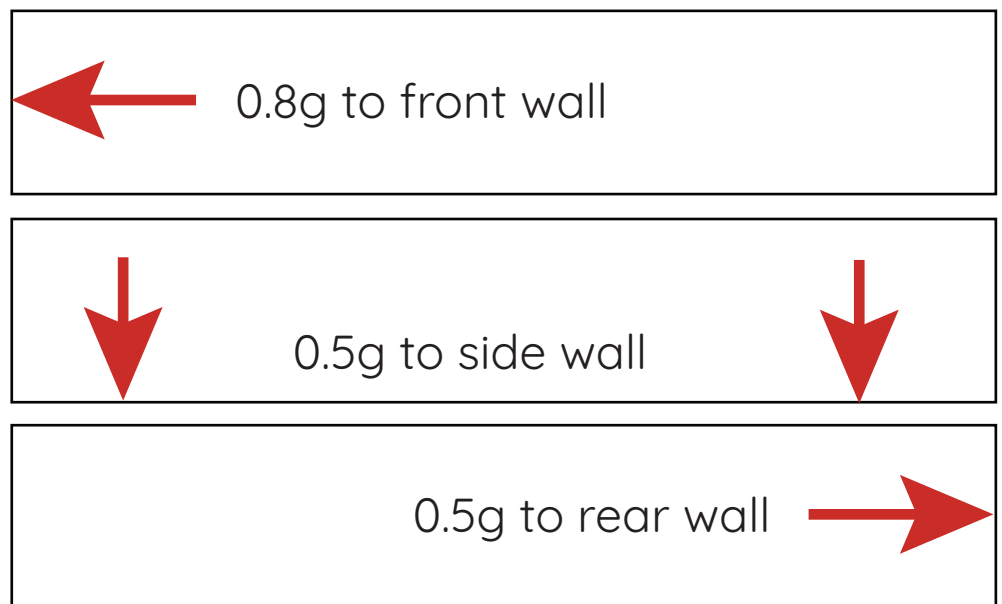
To achieve the EN 12642-XL standard, the load bearing capability of a complete vehicle must be tested. This can be determined using one of two test types: Static or Dynamic.

## Dynamic Testing (Annex B)

Don-Bur submits trailers and rigid bodies for test with the maximum payload weight permissible. A standard 44 tonne combination, for instance, should be loaded with the maximum payload potential (29,000 kgs). This is detailed in the test report; a copy of which is available on request.

The dynamic test is usually carried out on a large asphalt area such as an airfield. A suitable load is placed on the bed of the vehicle and it is then driven through 4 manoeuvre types until the test criteria are achieved.

These manoeuvres impose minimum G-forces on the intended surfaces.



## Approval Criteria

“The cargo securing equipment shall perform its function in three consecutive tests. If the cargo is secured by the vehicle body structure this means that there may be no permanent deformations or tears in the walls of the body or in their connections to the frames. If the cargo is secured by lashing equipment such equipment shall not display any damage.”

## What is “P”?

Although “P” is usually recognised as a unit of pressure, this unit is redefined in the standard as “the weight force (in kgs) of the vehicle to be tested at the authorised payload”.

This may be confusing as the tests are done with pressurised air bags.

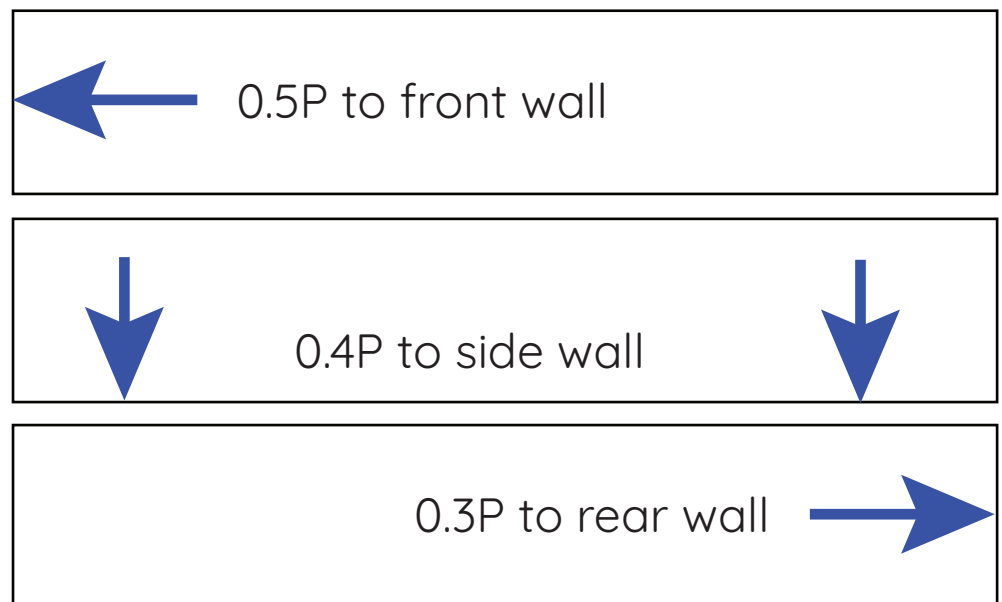
In reality, the testing agency calculates the required pressure (MPa) over the required curtain test area in order to achieve the required daN force. The original full standard document covers this in more detail.

## Static Testing (Annex A)

As an alternative to Dynamic testing, EN 12642-XL can be achieved using static testing.

Static testing, as the name suggests, is carried out while the vehicle is stationary. A framework, referred to as a reaction frame, is installed within the vehicle body and deflated air bags are positioned in the 50mm space between the reaction frame and the outer bodywork (front bulkhead, sides and rear). The air bags are then inflated by a compressor to a pre-calculated pressure threshold for a minimum of 5 minutes.

The minimum forces required ~



For example, a curtainsided trailer with a maximum payload potential of 29 tonnes (29,000 kgs) will be tested as follows:

Front Wall ~ 14,500 daN, Side Walls ~ 11,600 daN, Rear Wall ~ 8,700 daN

## Approval Criteria

“After finishing the tests , the body structure shall show neither permanent deformation nor other changes which would impair its intended use.”

“1) elastic deformation occurring during the test shall not exceed 300 mm.

2) at a test force of 85 % of the 100 % to be used for testing there shall be no permanent deformation.

3) at 100 % of the test force permanent deformation may at maximum be of 20 mm, however, aptitude for the intended function shall not be impaired.”

## Double Decks (Section 5.2.7)

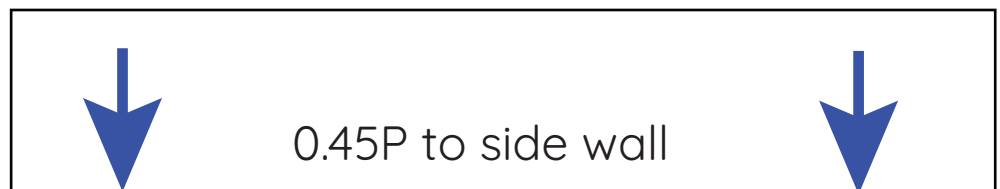
Special provisions are laid out for double decks as the stresses imposed on the bodywork differ from single deck trailer or rigid bodywork.

The minimum forces for both front bulkhead and rear wall are described on page 3. The minimum forces required for the side wall are as follows ~

### Box Van Construction



### Curtainsided Construction



Where the supporting cross beams are of a telescopic design (sometimes used in Europe with side pillars and cabbage board supports), an additional 0.1P should be added to the side force requirement.

Dynamic testing can also be carried out to achieve similar results.

“On the top loading level at half the height of the body it is permitted to carry  $\leq 50\%$  of the total payload. Where cargo loads on the upper deck depart from this or where the height position of the second cargo level differs, the percentage portion changes accordingly.”



## Beware of Imitations

Because of the highly visual nature of the yellow EN 12642-XL markings, be wary of markings by other suppliers that may look similar but do not carry the data required by the EN 12642-XL standard and do not state “This vehicle body complies with the standard EN 12642-XL”.


Such markings may be misleading and we suggest that you request a copy of the relevant EN 12642-XL report and certificate that should be available.

The marking shown below is **not** compliant.



## Marking (EN 12642-XL:2016)

Vehicles certified to comply with the EN 12642-XL standard must carry markings like the image shown below:

 DON-BUR (Bodies & Trailers) Ltd Mossfield Road, Adderley Green, Longton Stoke-on-Trent, Staffordshire, ST3 5BW United Kingdom	<b>This vehicle body complies with the standard</b> <b>EN 12642-XL</b> <b>P 29,000 kgs</b> (P is the test value)
Front wall	23,200 daN
Rear wall	14,500 daN
Side walls	14,500 daN
Number of laths per section	Not required

## The Use of Additional Load Restraint

It is possible to acquire an EN 12642-XL rating on a vehicle that uses a supplementary load restraint solution; however, this caveat will be stated on the issued certificate and the bodywork alone may not be capable of achieving the same standard without the addition of a load restraint solution.

## Retrofitting EN 12642-XL Components

It is not admissible to retrofit single individual components that are claimed to carry an EN 12642-XL rating (such as curtains or rear doors) without carrying out a whole vehicle test.

“A calculation or test for the complete system consisting of front, rear and side walls, roof and floor is necessary for the entire structure even if individual components have been taken from sample structures which have, before, been calculated or tested with positive results.”

## Interchanging EN 12642-XL Components

Under certain conditions, it is possible to interchange certain components for other EN 12642-XL components (such as exchanging a tail-lift with a shutter).

“... it is admissible to replace individual components which have successfully been tested within a complete system with others that have yielded the same results in testing.”

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## Thank You

If you have any questions about this document, or would like to discuss your operational requirements, please call Don-Bur on 01782 599 666

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This document has been produced for guidance only and Don-Bur accepts no liability for any loss incurred (in whole or in part) as a result of any interpretation (or actions taken thereof) of this guide.

For further information, please refer to the full BS EN 12642:2016 document.

