

# **STANDARD FOR UPRIGHT MATERIAL HANDLING LAUNDRY TROLLEYS (OPEN TOP)**

**NO: T.E.L. - 711 - Rev 1-16.**

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## 1. FOREWARD

This document has been prepared to introduce standards and standardisation in the laundry handling industry with regard to the product to be discussed. This is a standardising document and aims to facilitate the use of Upright Material Handling Laundry Trolleys with an Open Top supplied by various suppliers within the same facility

## 2. INTRODUCTION

Upright Material Handling Laundry Trolleys with an Open Top, referred to as Trolleys from here on, are used in the Laundry and Hospitality industries to transport linen and other product. These trolleys vary in size and are required to meet certain standards in order to be safe, hygienic and reliable.

## 3. SCOPE:

This standard specifies the requirements for plastic Material Handling Trolleys for use in the Laundry and Hospitality industries for the discharge and storage of Laundry and other products. The Trolleys will be used for the storage and transport of linen and goods which may be in contact with humans.

The purpose of the standard is to define the material used, specific requirements, type tests and production quality controls.

Companies manufacturing to this standard must be certified to ISO 9001 or equivalent.

## 4. NORMATIVE REFERENCE

This standard incorporates dated or undated references from other publications. These 'normative' references subsequent amendments to, or revisions of, any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated reference the latest edition of the publication referred to applies.

ISO	1133	Plastics Determination of the Melt Flow Rate of Thermoplastics
ISO	1183	Plastics: Method of determining density
ISO	R527	Determination of Tensile Properties
ISO	175	Plastics: Determination of the effects of liquid chemicals, including water
ISO	1872	Plastics: Test specimen preparation
EN	45020	General terms and their definition concerning standardisation and related activities

## 5. DEFINITIONS

Upright Material Handling Laundry Trolley with an Open Top; A vertical container with an open top that retains its design shape for the purpose of carrying and transporting product without any external support other than elements incorporated in its design.

## 6. DESIGN REQUIREMENTS

- 6.1 The trolleys shall conform to the dimensions herein to facilitate the fitting onto a standard width truck or into a container. There shall be minimal room for the trolleys to move around during transport, thus protecting them from damage.
- 6.2 The product shall be manufactured from UV stabilised, medium density polyethylene, (Colour to be specified), with an anti-bacterial inner lining to help eliminate bacterial on the inside.
- 6.3 Any corners or edges on the product must be rounded to a minimum radius of 10mm.
- 6.4 Sufficient ribs and stiffeners shall be moulded into the product to generate strength and prevent warpage.
- 6.5 In order to aid the operator and ease manoeuvrability, the product shall incorporate handles fitted externally on the sides of the unit. The handles shall be recessed in order to protect the hand of the operator.
- 6.6 The product shall incorporate heavy duty, non-marking, freely moving castors with wheel and bearing protection.
- 6.7 The product shall have a protected steel support frame fitted onto the base of the product to facilitate load spread.
- 6.8 PVC curtains shall be included which will completely cover the front and top opening on the trolley.
- 6.9 An envelope pocket shall be incorporated on the product to accommodate information / delivery sheets.
- 6.10 The product shall incorporate a drainage outlet & plug, moulded into the product and not just a cut hole, to allow for draining the product during washing and it shall include a cap to prevent dust or contamination ingress.
- 6.11 Panels to accommodate customer signage or advertising shall be incorporated in the design.
- 6.12 The trolley shall have an open top, or roof, to aid loading from the top.

## 7. MATERIAL PROPERTIES

- 7.1 Raw materials (Medium Density Polyethylene)  
The material must be determined in accordance with ISO 1183 method A or D. A single resin polymer shall have a density not less than 932kg/ m<sup>3</sup> and not greater than 952kg/ m<sup>3</sup>.
- 7.2 Melt Flow Rate  
The Melt Flow Rate is measured in accordance with ISO 1133 Section 4, must be a maximum of 7g/10min and a minimum 3g/10min. Test to be carried out on raw material.
- 7.3 Weather Resistance  
The material and colouring used in the manufacture of the body shall be ultra violet light stabilised to a rating of 8 or greater.
- 7.4 There shall be no colour give-off from any material in contact with the product being handled.
- 7.5 Steel Frame  
The steel frame shall be manufactured from 25 x 25 x 1.5mm box section bright mild steel to EN 10305-5.
- 7.6 Fabrication of Steel Frame  
All welding of steel components to be completed by a certified welder in accordance with EN 287-1.
- 7.7 PVC curtains shall follow the following criteria and reflect a resemblance to the drawings in Annex 1.1,  
Material Grade : As per annex, See Annex 2.  
Thread Type: As per annex, See Annex 2.  
Velcro Type: Hook and loop 25mm in width  
Turn button Type: Must have a locking hole to accommodate a security tag to fit through it. They shall not degrade in wet conditions.  
Steel Stud Type: Stainless steel, galvanised or cadmium plated with no sharp edges.  
Document Pouch: Accommodate an unfolded A4 sheet.  
Edging: all edges of the curtain shall be sewn in lap formation by at least 5mm as per annex 1.1.
- 7.8 Castors  
Castors shall follow the specifications given in Annex 3.

## 8. TROLLEY

- 8.1 Capacity and Tolerance  
The inner capacity shall be 0.94m<sup>3</sup> +20% / -10%
- 8.2 Visual inspection  
On visual inspection of the trolley there should be no bubbles, blisters, or other defects that could cause a hole or fracture.
- 8.3 Weight  
The weight of the body of the trolley excluding all fittings shall be no less than 30kg +/-5%.
- 8.4 Wall thickness  
The minimum wall thickness on any point of the sides, top or base shall not be less than 4mm +/- 5%.
- 8.5 Load capacity  
The trolley shall be designed and tested to give a minimum load capacity of 250kg. The load capacity shall be stated on the product.

- 8.6 The certified load capacity shall be the stated load capacity multiplied by a factor of 1.25. The max. load shall be 320kg +/- 10%.
- 8.7 The trolley shall be sized as per Annex 5 +/- 5%.

## 9. TESTING

### 9.1 Kerb Test;

The trolley, complete with all its framework and fixings shall be subject to a series of tests as follows:

- a) The trolley shall be loaded with weight which equates to its certified capacity well distributed.
- b) The temperature at test shall be 20°C +/- 5°C.
- c) The trolley shall be pushed down a kerb drop of 100mm, 50 times while fully loaded. All 4 wheels shall be disembarked from the kerb during each drop.
- d) Result:
  - No failure of trolley, frame or any part shall occur.
  - The trolley shall retain its shape and functionality during testing.
  - The trolley when emptied shall return to its original shape within 1 hour and be suitable for re-use.

### 9.2 Lift test

The trolley fully loaded and under the same conditions as in 9.1 above shall be subjected to a series of 200 lifts by a fork truck in batches of 50.

- Result:

There shall be no deformation to the support frame or the trolley and when emptied shall return to its "fit for use" condition within 1 hour.

### 9.3 Test frequency

- a) Load capacity is a type test and shall be completed once at the initial stage of the product.
- b) Weight: The weight of the trolley shall be tested every 6 months from samples randomly picked from production to be sure the shot weight and material is consistent.
- c) Kerb test: product randomly selected from production run every 6 months shall be tested in accordance with 9.1 above
- d) Lift test: product randomly selected from production run every 6 months shall be tested in accordance with 9.2 above.
- e) Capacity: As defined in 8.1, is a type of test that is completed once off.
- f) Visual inspection: Every trolley.
- g) (Wall thickness: product randomly selected from production run every 3 months shall be tested, samples taken from a grid of 24 locations spread over the 6 faces of the trolley shall be tested.

### 9.4 Curtain Thread Test

The thread used for the sewing of the PVC curtain shall be tested once off to define the correct thread. A length of 300mm shall be subject to a drop test with 250g of mass dropped 300mm. The thread shall not break. The thread shall be soaked in Xylene for 15 minutes, the thread shall not degrade within a further 15 minutes. See appendix 1.2 for diagram.

## **10. FINISHING OF METAL PARTS**

All metal parts shall be protected as follows.

Frame: Galvanised or cadmium plated.

Fixings: Aluminium, Cadmium Plated, Zinc Plated, Galvanised or Stainless steel.

The metal frame shall be made from 25 x 25 x 1.5mm mild steel box section, or heavier.

## **11. Fittings and Optional Extras**

- 11.1 There shall be an option of two PVC covers available, one material fixed by the attachment of Velcro adhered and additionally fixed to the product by rivets and to the curtain by stitching. The second option is fixing by turn button type fixings located as per the drawing in Annex 1. See Annex 1 for examples and dimensions. Tolerance on dimensions shall be +/- 2mm.
- 11.2 Handles shall be specified as per Annex 4.
- 11.3 Annex 2 shows the specifications these covers shall be manufactured to.
- 11.4 Castors shall be matched to the specifications given in Annex 3.

## **12. MARKINGS:**

The following information should be marked on each trolley:

- Year of Manufacture.
- Standard number.
- Load capacity.
- Name of manufacturer.
- Maximum weight when empty.
- Quality checked and signed.
- Product code.

## **13. PRODUCTION AND QUALITY CONTROL**

The tests described in chapter 9 of this standard shall be carried out at the frequency indicated above during production, quality control, and records maintained within a quality system. This system should be audited and certified by a Certified External Authority in accordance with CEN regulator EN 45020.

## **14. HANDLING AND USE**

The manufacturer shall supply instructions for the handling and use of the trolley.

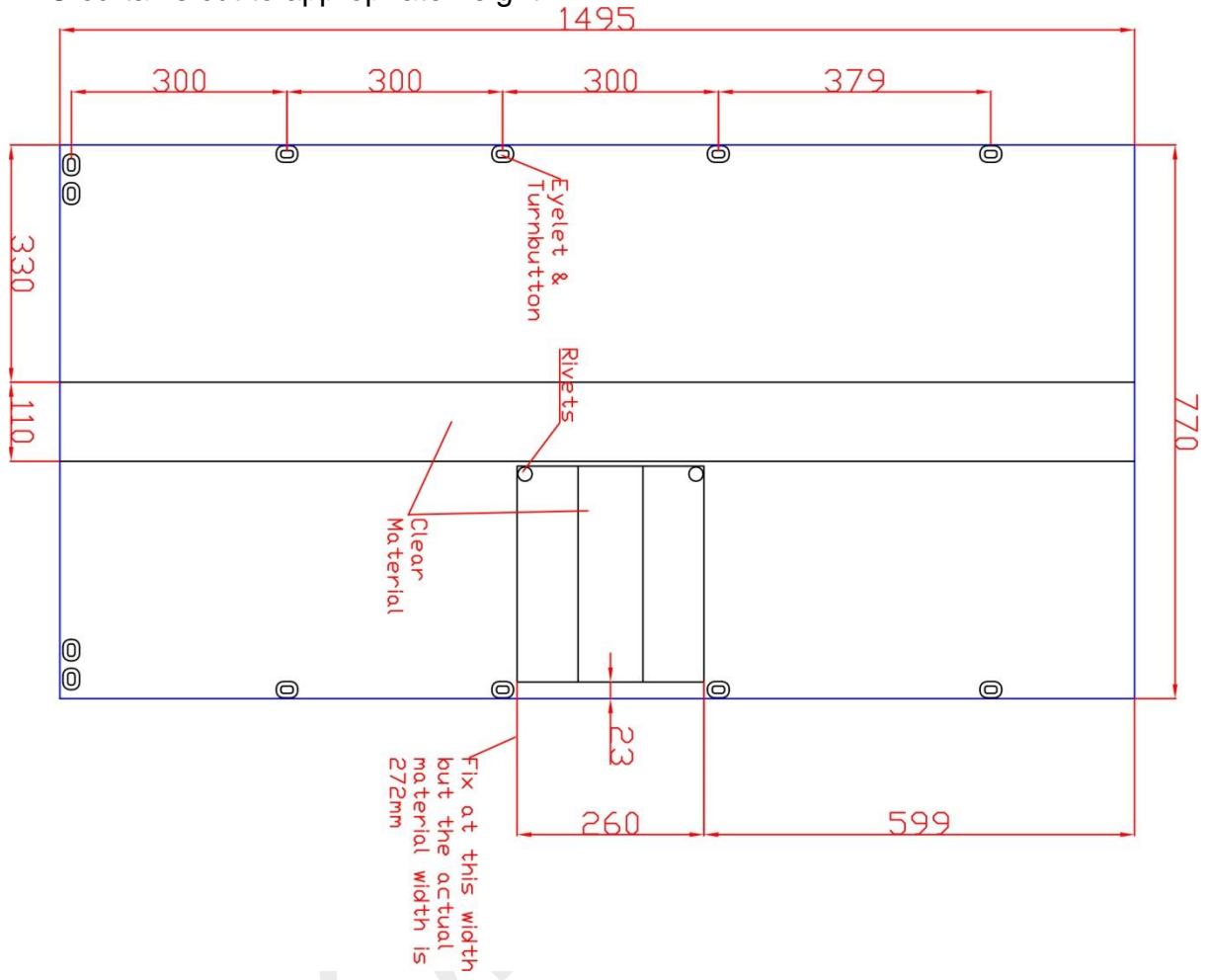
## **15. RECYCLING/ REPAIR**

It shall be a condition of supply that the supplier offer the facility to take back for recycling, end of life product.

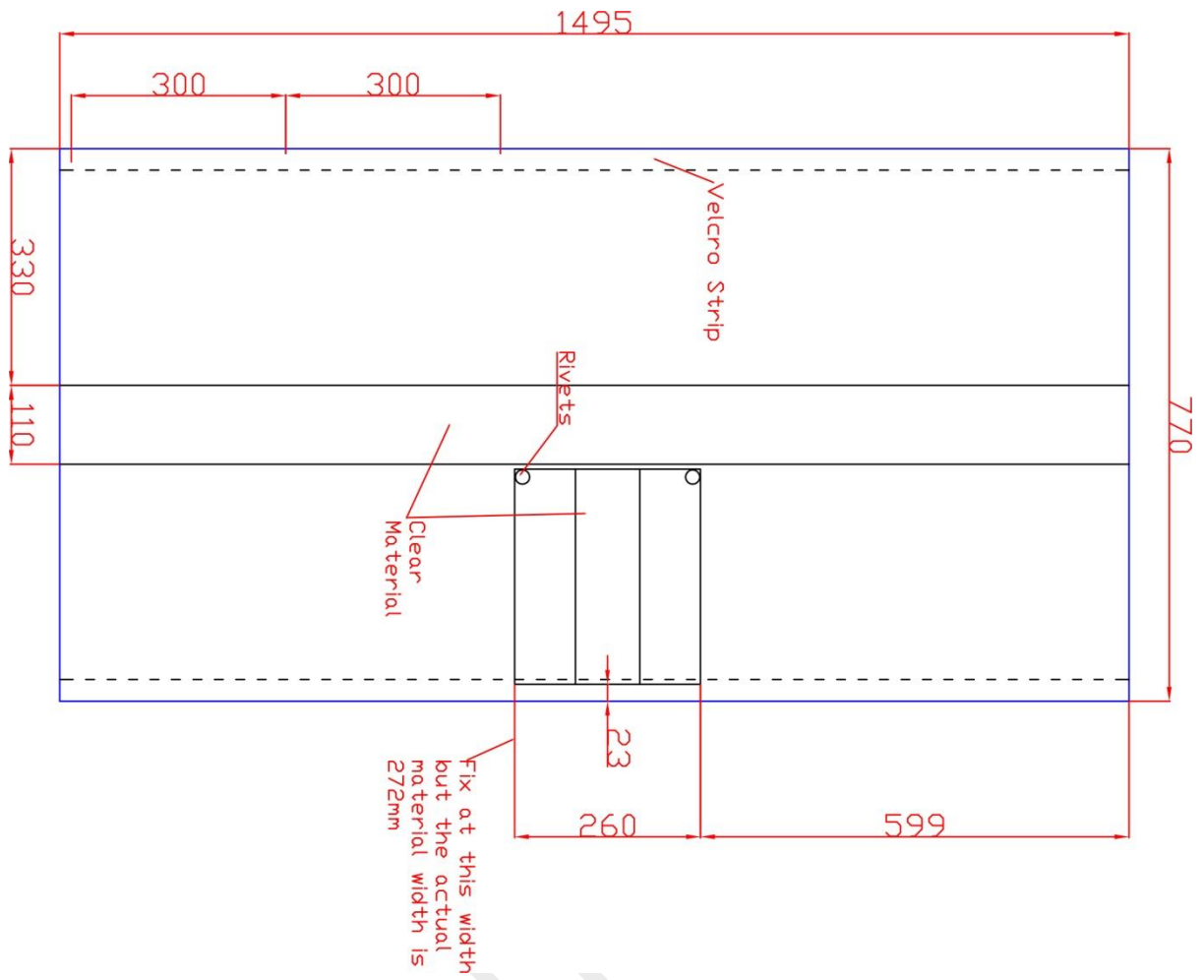
The supplier shall furthermore offer the facility to repair product which may suffer minor damage.

### Annex 1.1

PVC curtains cut to appropriate height







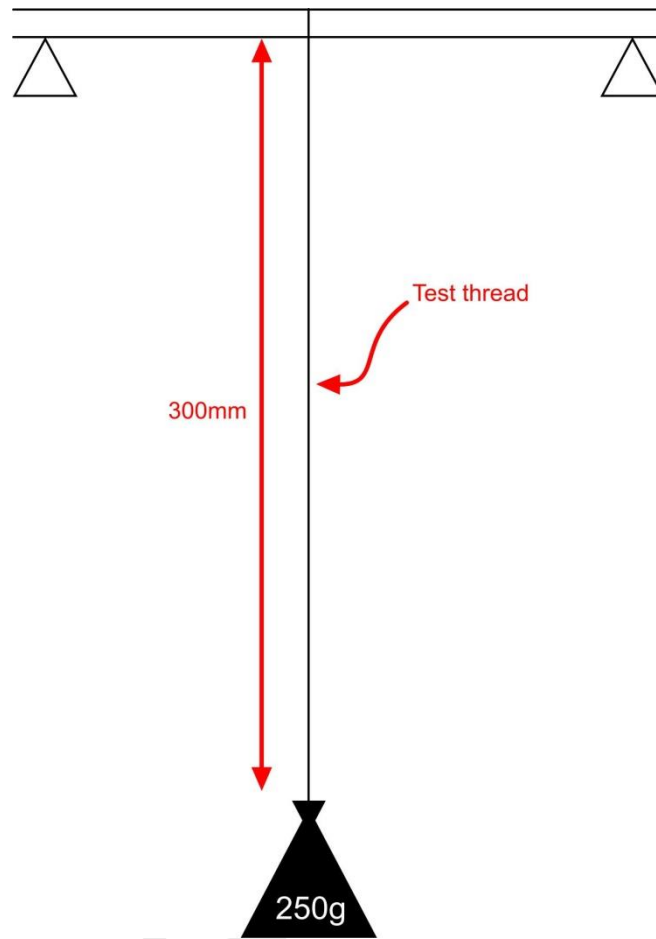
Examples of lapping the edges



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## Annex 1.2

### Thread loading test



## Annex 2

PVC Curtain specifications.

Thread Type:

#15 UV stabilized polyester, bonded, thickness is measured in numbers, this is to be a number 9.

Curtain Type:

<b>TECHINCAL CHARACTERISTICS - QUALITY : 453</b>		
Base Fabric		Polyester 1100 Dtex, 2 - Skaft
Coating		PVC
Width	EN 1848-2	204 cm
Weight	EN 1849-2	700 g/m <sup>2</sup>
Tear Resistance	EN 12310-2 / DIN 53356	400 / 300 N
Tensile Strength	EN 12311-2	3000 / 2900 N / 5cm
Adhesion	DIN 53357	100 N / 5 cm
Flame Retardancy	SIS 650082	Satisfactory
Temperature Resistance	EN 495-5 / DIN 53361	70°c / -30°c
Finish		Untreated / Matt

## Annex 3

### Castor Specifications.

## Product Information

### 125mm '22' Blue Elastic Plate

#### Characteristics

Good floor preservation  
Vibration absorbing  
Temperature : -30° / +80° C

Low rolling and adrasion resistance  
Hardness of thread: 70 shore A  
Resistant to many aggressive substances

#### Wheel

Wheel Diameter	125mm
Wheel Width	37mm
Bearing Type	roller
Wheel Bore	14mm
Hub Length	48mm
Capacity	200kg

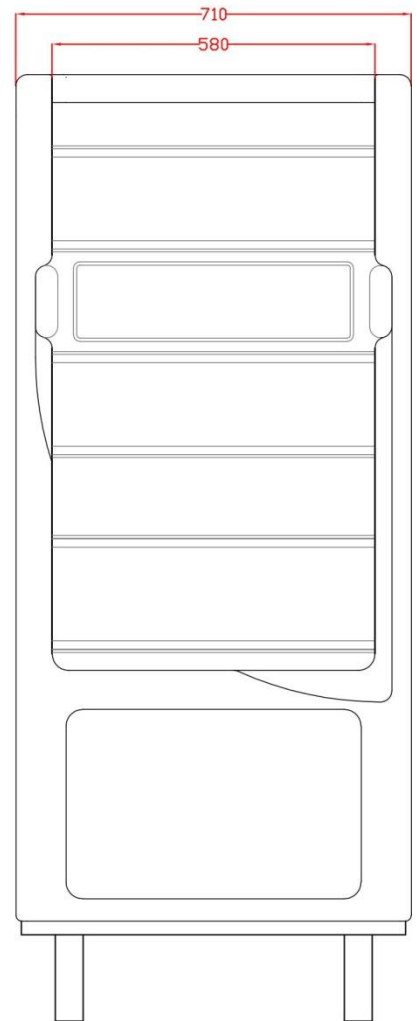
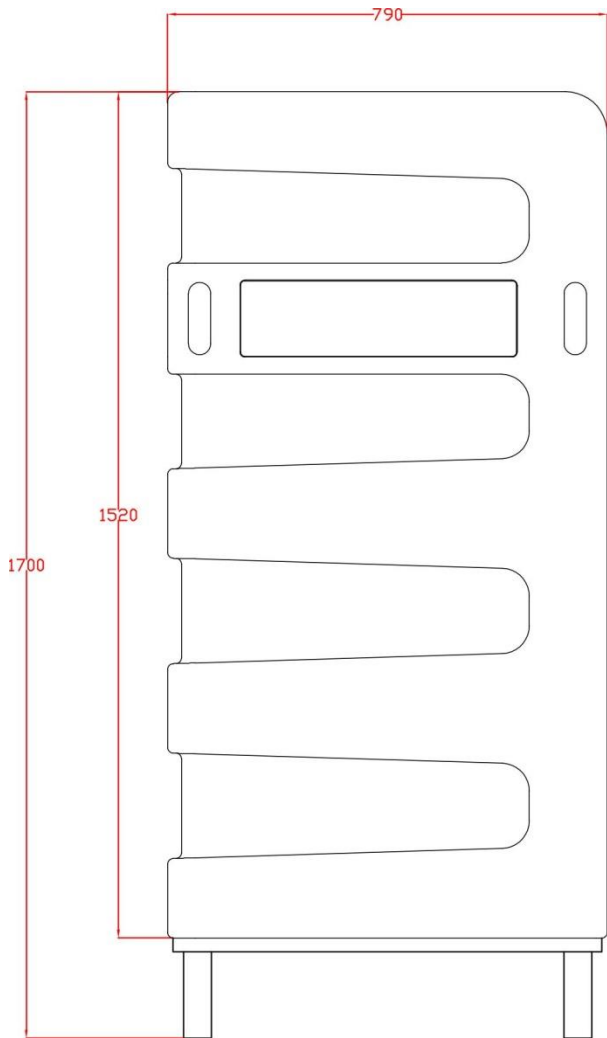
#### Castors

##### Zinc plated pressed steel housing

Wheel Diameter	125mm
Wheel Width	37mm
Bearing Type	roller
Plate Size	100x80mm
Hole Centres	80x60mm
Hole Diameter	9mm
Overall Heigth	152mm
Load Capacity	200kg
Offset on Swivel	39mm



## Annex 5 Trolley Dimensions



## Annex 6

### Frame Dimensions

