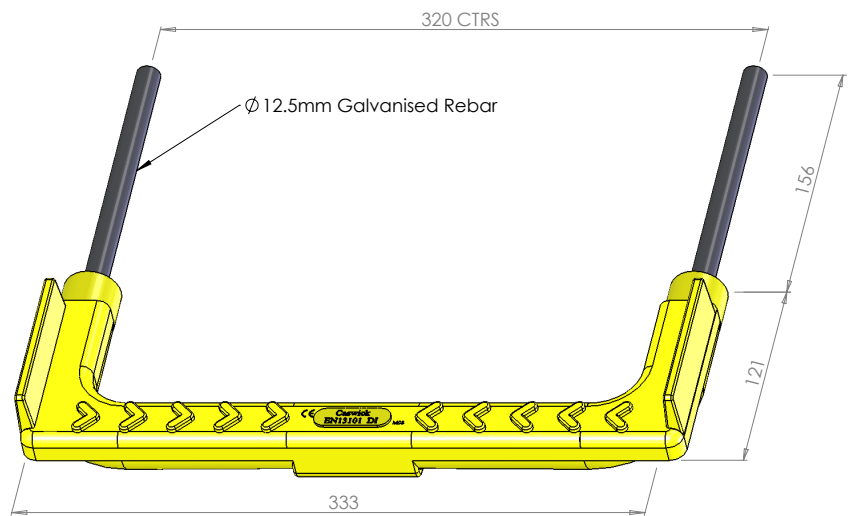


Drawing Number: 1333
Product Code: SS402 (galvanised)
SS204 (stainless)

Permutation :
Step 320 Brick

| | |
|---------------------------|---|
| Type of Test | TYPE TEST |
| Standard Tested to | EN13101:2002 (including Annex ZA1) |
| Step Specification | Step, 320mm CRS, 120mm nominal projection. Rebar tail. Intended for, but not limited to, fitting into mortar gaps in block work or fixing by adhesive into drilled holes. |

Product Image



Approved by

Name: A. Turner
Signature: *A. Turner*
Position: Technical manager
Issue date: 16th September 2014

The results in this test report apply only to the samples tested, using the method tested as detailed in this report. This test report does not indicate certification or approval of any product to any standard. This report may not be used to advertise any product without written consent from the Managing Director of Caswick Ltd. Caswick Ltd have to right to refuse the publication of this report to any person(s) without giving reason. Caswick reserve the right to change the information in this report at any time.

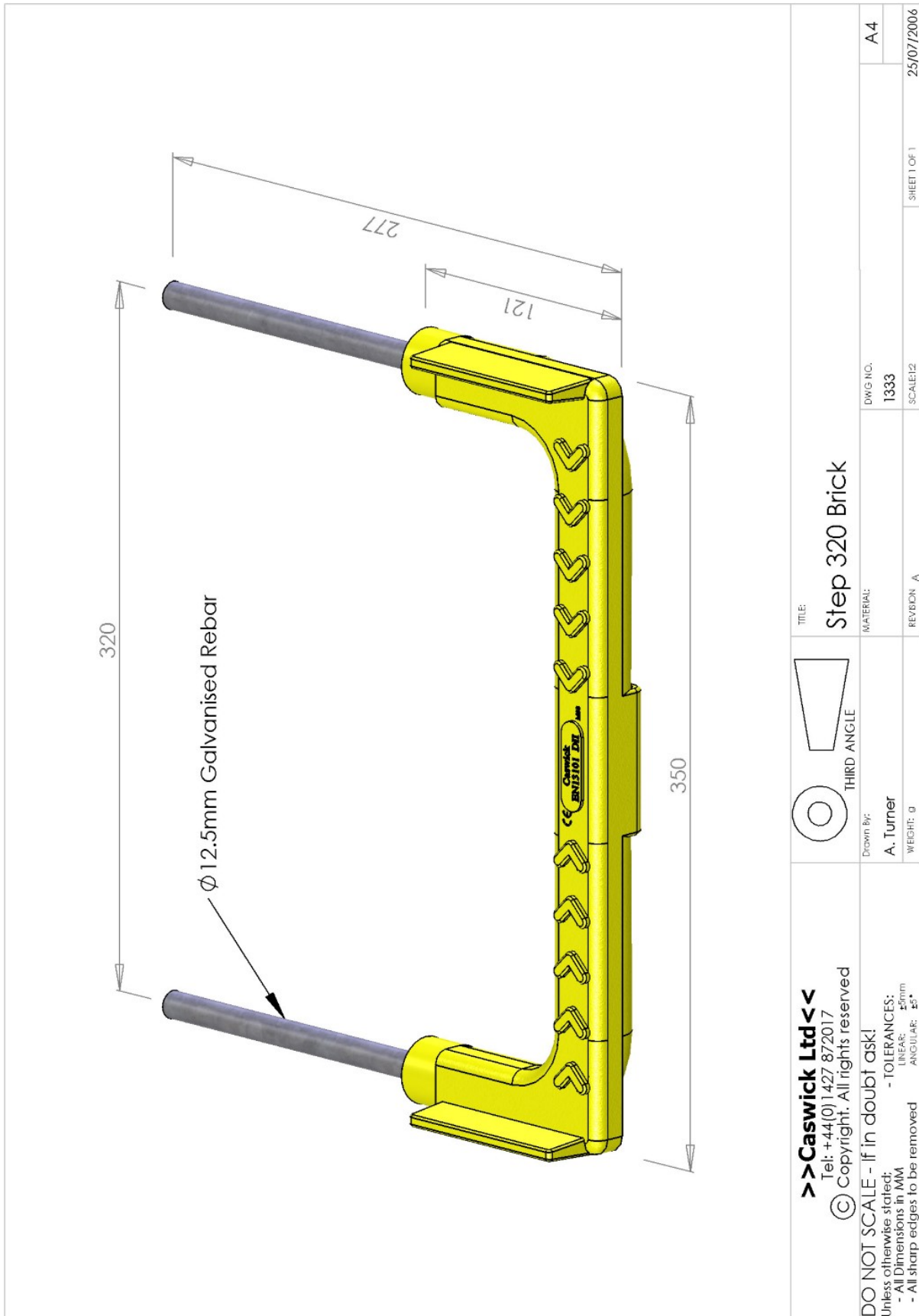
All test results given in this document are taken from a random step sample. The step is picked at random from normal production and tested in accordance with standard EN13101. Although routine random sample testing is carried out to ensure our products meet the highest standard, due to variations beyond our control the results given here may vary slightly to the product supplied to you. All steps will comply with EN13101.

| | | |
|----------------|-------------------------|----------------|
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| | |
|-------------------------|--|
| Product Overview | 320mm centres 120mm nominal projection Bright colour Side plate (boot stop) Rebar tail |
|-------------------------|--|

| | |
|---------------------|---|
| Intended use | Incorporating into concrete structures. Fitting methods; - Drill and glue - Fix into mortar gap of block work |
|---------------------|---|

Product Drawing



Materials

Section 4.2

Where appropriate the step materials shall conform to the following;

| Category | Type | Required Standard | Actual Standard |
|-------------|---------------|---|--------------------------------|
| | Steel | Steel to EN 10025 or ENV 10080:1995 or current equivalent | EN10305 |
| | | Stainless steel to EN10088-1 or EN10088-3 grade X6CrNiTi18-10 or better | EN10088-3 |
| Galvanizing | | EN ISO 1461 | EN10204:2005 |
| Plastics | Polyethylene | Minimum density 0.935 g/cm ³ as tested in ISO 1183 | N/A |
| | Polypropylene | Polypropylene Copolymer | PP Block Copolymer High Impact |

EN 13101:2002 Type

Requirement – Section 4.3.1

Requirement

Steps shall be one of the following types;

Type A – Circular tread without patterned surface, without upstand

Type B – Circular tread without patterned surface, with upstand

Type C – Any shape tread with patterned surface, without upstand

Type D – Any shape tread with patterned surface, with upstand

Result

The step is a type D class II

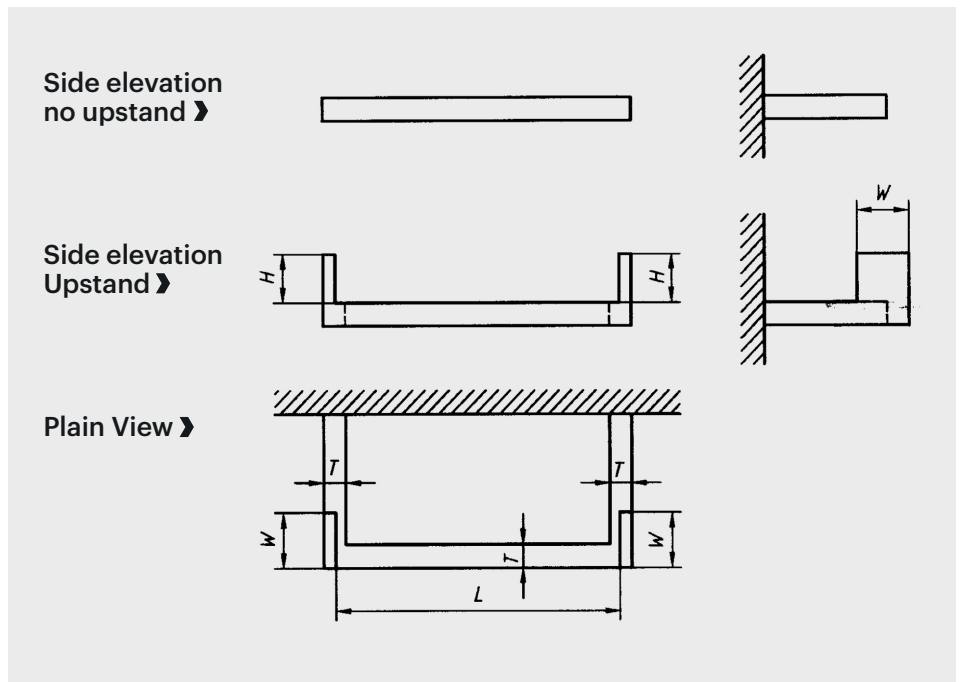
EN 13101:2002 Dimension Check

Requirement – Section 4.3.2

Requirement

When measured at the points shown on the diagram below, the dimensions must be within the range set in the table below.

Result



| Dimension | Specified (mm) | | Actual (mm) |
|------------------------|----------------|-----------|-------------|
| | Single | Double | |
| Width of tread (T) | >20 | >20 | 30 |
| Length of tread (L) | >145 | >250 | 334 |
| Stand off distance (P) | >120 | >120 | 120 |
| Upstand (H) | 5 to 20 | >= 20 | 21 |
| Upstand (W) | >=25 | 25 to 100 | 88 |

Note: Dimensions H & W are requirements of step type B & D only

Is the upstand on double steps within 70mm from the front of the tread?

Yes No

EN 13101:2002 Limit of Insertion: Requirement – Section 4.3.3

Is the depth of insertion defined by a change in section or mark?

Yes No

EN 13101:2002 Surface Condition: Requirement – Section 4.3.4

Is the step free from visible defects, protrusions and sharp edges?

Yes No

EN 13101:2002 Corrosion Resistance: Requirement - Section 4.3.5

| Material | Requirement | Sample |
|----------|---------------------------|--------|
| Steel | Galvanized to EN ISO 1461 | |
| | Plastic Encapsulation | Yes |

EN 13101:2002 Twist test: Requirement – Section 4.3.6
Procedure – Annex A

Requirement: When supported on pins in three locations, the centre of the tread and at each tail, the variation in height along the length of the tread shall not vary more than 5mm for a double step and 3mm for a single step.

| Position | Max Allowable | Gap (mm) |
|---------------|-----------------------|----------|
| Left Quarter | | 19.9 |
| Centre | | 19.8 |
| Right Quarter | | 21.8 |
| Range | 3mm Single 5mm Double | 2.0 |

EN 13101:2002 Vertical load test: Requirement – Section 4.3.7
 Procedure – Annex B

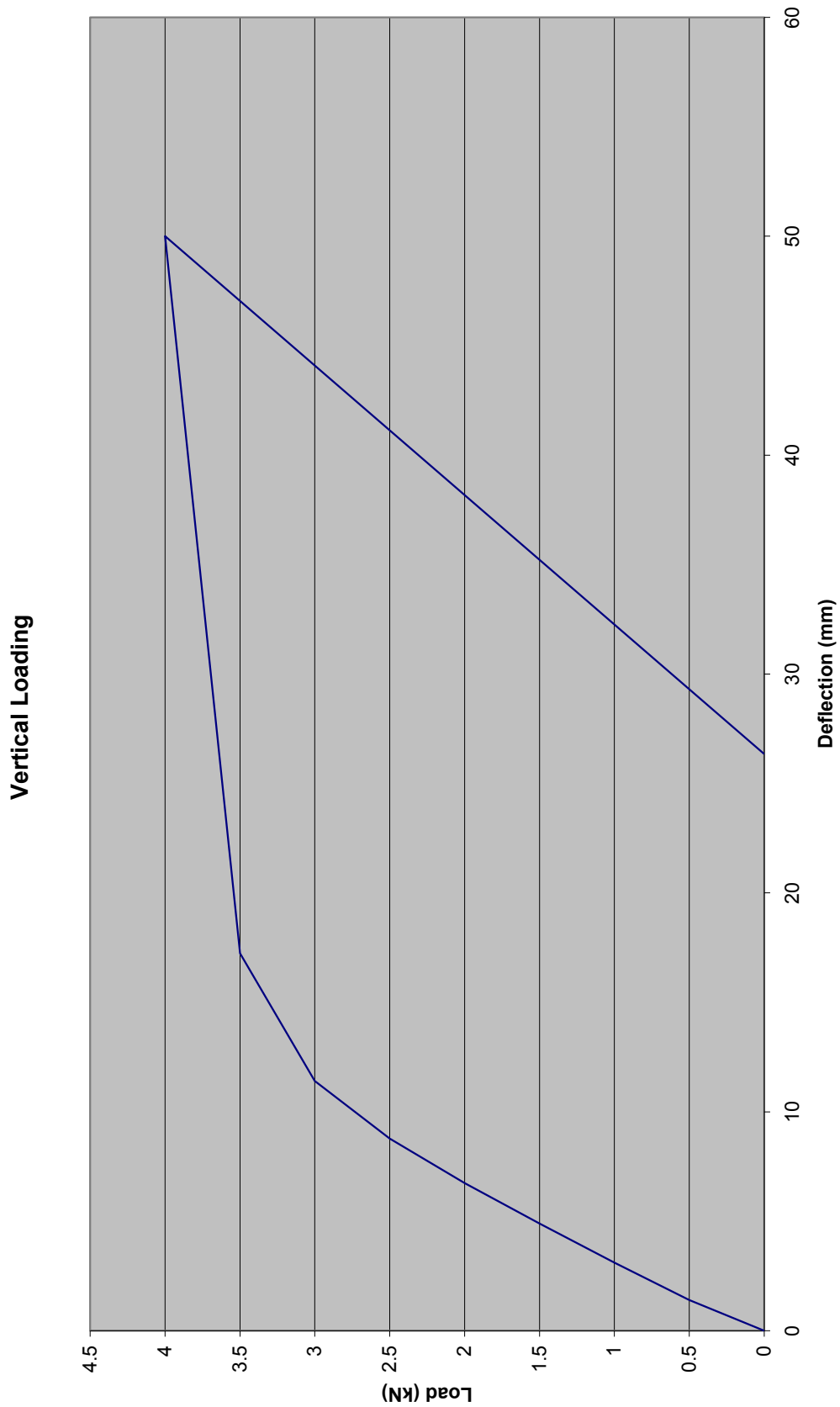
Requirement: When loaded at the centre of the tread vertically down, the step must not deflect more than 10mm under a load of 2kN and return to within 2mm once the load is released. A load of 4kN must then be applied, once this load is released the step deflection must return to within 10mm.

Results: **LOAD AT A RATE OF 1kN/min TO 3kN/min**

| Procedural Event | Deflection (mm) | |
|---------------------------------------|-----------------|---------------|
| | Actual | Max Allowable |
| Zero Dial Gauge and Load cell | | |
| Load to 0.5kN | 1.54 | |
| Load to 1.0kN | 3.19 | |
| Load to 1.5kN | 5.00 | |
| Load to 2.0kN and hold for 60 seconds | 7.31 | 10mm |
| Return to 0.0kN and allow to settle | 0.38 | 2mm |

| | | |
|---------------------------------------|-------|------|
| Zero Dial Gauge and Load cell | | |
| Load to 0.5kN | 1.40 | |
| Load to 1.0kN | 3.11 | |
| Load to 1.5kN | 4.89 | |
| Load to 2.0kN | 6.74 | |
| Load to 2.5kN | 8.78 | |
| Load to 3.0kN | 11.41 | |
| Load to 3.5kN | 17.24 | |
| Load to 4.0kN and hold for 60 seconds | o/s | |
| Return to 0.0kN and allow to settle | 26.35 | 50mm |

Did the plastic fracture? Yes No



EN 13101:2002 Pullout test: Requirement – Section 4.3.9
 Procedure – Annex D

Requirement: The step must withstand a force of 5kN applied in the horizontal plane away from the fixing for 60 seconds without sign of failure.

Results:

| Procedural Event | Load (kN) |
|---|--------------|
| Load to 5.0kN in no more than 60 seconds without shocking the step. Hold for 60seconds. | |
| Load at failure or load sustained | >5kN for 60s |

EN 13101:2002 Impact test: Requirement – Section 4.3.10
 Procedure – Annex E

Requirement: A step conditioned at 20°C for 4 hours must withstand a 20kg mass dropped on its tread from a height of 1 meter without signs of failure. After impact the step must provide an electrical resistance of at least 1MΩ at 500v when immersed in a water based solution for 30 minutes.

Results: Step held at 20°C for 4 hours.

Visual assessment of step after impact:
 No cracks in plastic

EN 13101:2002 Plastic Integrity test after Impact:

Reading 1 (M Ohms): >999
 Reading 2 (M Ohms): >999

EN 13101:2002 Plastic Integrity test: Requirement – Section 4.3.11
 Procedure – Annex F/G

Requirement: The step must provide an electrical resistance of at least 1MΩ at 500v when immersed in a water based solution for 30 minutes.

Results: Reading 1 (M Ohms): >999
 Reading 2 (M Ohms): >999

EN 13101:2002 Encapsulation

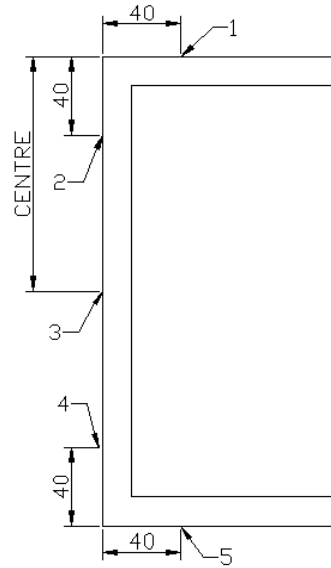
Thickness Test:

Requirement – Section 4.3.12

Procedure – Annex H

Requirement:

When cut at the 5 positions shown below, the encapsulation thickness must be 2.5mm or over.



| | Thickness of Cover (mm) | |
|---------|-------------------------|--------|
| | Min Specified | Actual |
| Point 1 | 2.5 | 8.4 |
| Point 2 | 2.5 | 4.7 |
| Point 3 | 2.5 | 5.2 |
| Point 4 | 2.5 | 5.3 |
| Point 5 | 2.5 | 8.2 |

Marking:

Section 6

The following shall be visible after installation;

Marking Requirements

Present?

"EN13101"
 Manufactures Identification
 Material Code (see below)
 Type and class

Yes No
 Yes No
 Yes No
 Yes No

| Material | Solid | Tubular |
|-----------------|------------|---------|
| Mild Steel | MSS | MST |
| Stainless Steel | SSS | SST |

Material codes - Table 3 from EN 13101:2002

**Additional marking on this product
 (for information purposes only);**

CE Mark next to manufacturers name?
 Third party certification body
 (BSI Kitemark)?

Yes No
 Yes No