

## This is a RISSB Australian Standard® development draft

Content in this document is for RISSB product development purposes only and should not be relied upon or considered as final published content.

Any questions in relation to this document or RISSB's accredited development process should be referred to RISSB.

### RISSB Contact details:

#### Head office:

Phone:

(07) 3724 0000  
+61 7 3724 0000

Email:

info@rissb.com.au

Web:

www.rissb.com.au

#### Standard Development Manager:

Name:

Carly Wilson

Phone:

0419-916-693

Email:

cwilson@rissb.com.au

### Copyright

© RISSB

All rights are reserved. No part of this work can be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of RISSB, unless otherwise permitted under the Copyright Act 1968.

## Data entry – draft starts next page

<b>Standard number</b>	AS 1085.3
<b>Version year</b>	2025
<b>Standard name</b>	Railway Track Material – Part 3: Sleeper Plates
<b>Standing Committee</b>	Infrastructure
<b>Development group member organisations</b>	
<b>Review type</b>	
<b>First published</b>	AS E1a—1926T
<b>ISBN</b>	
<b>SDM name</b>	Carly Wilson
<b>SDM phone</b>	0419-916-693
<b>SDM email</b>	cwilson@rissb.com.au

## Development draft history

Draft version	Draft date	Notes
1	15/05/2024	Initial version generated from the most recently published version
2	4/06/2024	Minor changes to align with styles and voice

## Preface

This standard was prepared by the Railway Track Material – Part 3: Sleeper Plates Development Group, overseen by the RISSB Infrastructure Standing Committee.

## Objective

The objective of this Standard is to provide manufacturers and purchasers with materials, dimensions and performance requirements for rolled or cast sleeper plates of clip-fastening and double shoulder type intended for use with timber sleepers in railway track.

Changes to the previous edition are as follows:

- (a) Change of title of the AS 1085 series (previously Railway permanent way material).
- (b) The referenced documents list has been revised.
- (c) The most recent version of the informative Appendix 'Means of demonstrating compliance with this Standard' has been included.

This Standard covers cast iron sleeper plates and alloyed carbon steel sleeper plates within the limits for chemical composition. In the area of unalloyed carbon steel baseplates it is based on ISO 6305-2-1983, Railway components - Technical delivery requirements – Part 2: Unalloyed carbon steel baseplates, but differs from it as follows:

- (d) This Standard contains no requirements covering working gauges, acceptance conditions or statistical quality level criteria for product.
- (e) Materials for rolling are specified by chemical analysis.
- (f) Tolerances are specified for more dimensions and are in some cases different.
- (g) A bend test has been included.
- (h) Marking includes more detail.

An Appendix includes full development profiles and section properties for sleeper plates.

The Standard now requires that the datum side of rolled steel sleeper plates be clearly marked and the chemical composition has been brought in line with other recently published steel Standards.

This Standard does not preclude the adoption, by agreement between the purchaser and the manufacturer, of requirements other than those specified herein. The drawings in the Appendices show typical hole positions only; alternative arrangements can possibly be negotiated with respect to hole configurations, dimensions and tolerances.

## Compliance

There are four types of provisions contained within Australian Standards developed by RISSB:

- (a) Requirements.
- (b) Recommendations.
- (c) Permissions.
- (d) Constraints.

**Requirements** – it is mandatory to follow all requirements to claim full compliance with the Standard. Requirements are identified within the text by the term ‘shall’.

**Recommendations** – do not mention or exclude other possibilities but do offer the one that is preferred.

Recommendations are identified within the text by the term ‘should’.

Recommendations recognize that there could be limitations to the universal application of the control, i.e. the identified control is not able to be applied or other controls are more appropriate or better.

**Permissions** – conveys consent by providing an allowable option. Permissions are identified within the text by the term ‘may’.

**Constraints** – provided by an external source such as legislation. Constraints are identified within the text by the term ‘must’.

For compliance purposes, where a recommended control is not applied as written in the standard it could be incumbent on the adopter of the standard to demonstrate their actual method of controlling the risk as part of their WHS or Rail Safety National Law obligations. Similarly, it could also be incumbent on an adopter of the standard to demonstrate their method of controlling the risk to contracting entities or interfacing organisations where the risk may be shared.

RISSB Standards address known hazards within the railway industry. Hazards, and clauses within this Standard that address those hazards, are listed in Appendix A.

**Appendices** in RISSB Standards may be designated either “normative” or “informative”. A “normative” appendix is an integral part of a Standard and compliance with it is a requirement, whereas an “informative” appendix is only for information and guidance.

## Commentary

### *Commentary C Preface*

This Standard includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by ‘C’ preceding the clause number and is printed in italics in a box. The commentary is for information and guidance and does not form part of the Standard.

## Table of Contents

<b>Section 1</b>	<b>Scope and general .....</b>	<b>6</b>
1.1	Scope .....	6
1.2	Normative references.....	6
1.3	Defined terms and abbreviations.....	7
<b>Section 2</b>	<b>Purpose and context of use .....</b>	<b>8</b>
2.1	Function.....	8
2.2	Action .....	8
<b>Section 3</b>	<b>Rounding of numbers .....</b>	<b>8</b>
<b>Section 4</b>	<b>Designation .....</b>	<b>8</b>
<b>Section 5</b>	<b>Dimensions and tolerances .....</b>	<b>8</b>
<b>Section 6</b>	<b>Materials.....</b>	<b>10</b>
6.1	Rolled steel .....	10
6.2	Cast iron.....	10
<b>Section 7</b>	<b>Holes .....</b>	<b>10</b>
<b>Section 8</b>	<b>Finish.....</b>	<b>11</b>
8.1	Rolled steel sleeper plates.....	11
8.2	Cast sleeper plates .....	11
<b>Section 9</b>	<b>Testing .....</b>	<b>11</b>
9.1	Bend test for rolled sleeper plates .....	11
9.2	Mechanical tests for cast sleeper plates .....	11
9.3	Visual inspections of cast sleeper plates .....	11
<b>Section 10</b>	<b>Marking.....</b>	<b>11</b>
<b>Appendix A</b>	<b>Hazard register (Informative) (Appendix Heading 1).....</b>	<b>12</b>
<b>Appendix B</b>	<b>Information to be supplied by the purchaser (Informative).....</b>	<b>13</b>
<b>Appendix C</b>	<b>Means of demonstrating compliance with this standard (Informative) .....</b>	<b>14</b>
C.1	Scope .....	14
C.2	Statistical sampling.....	14
C.3	Product certification.....	14
C.4	Supplier’s quality management system .....	14
C.5	Other means of assessment .....	15
<b>Appendix D</b>	<b>Cast sleeper plate profiles and section properties (Normative) .....</b>	<b>16</b>
D.1	Scope .....	16
D.2	Hole patterns.....	16
D.3	Clip-fastening sleeper plate.....	16
D.4	Double-shoulder sleeper plate .....	16
<b>Appendix E</b>	<b>Rolled steel sleeper plate profiles and section properties (Normative) .....</b>	<b>26</b>
E.1	Scope .....	26
E.2	Hole patterns.....	26

E.3	Clip-fastening sleeper plate.....	26
E.4	Double-shoulder sleeper plate.....	26
<b>Appendix F</b>	<b>Bend test for rolled steel sleeper plates (Normative) .....</b>	<b>34</b>
F.1	Preparation of test piece.....	34
F.2	Test procedure .....	34

**Figures**

Figure 7-1	Dimensions of D holes .....	10
Appendix Figure D.4-1	Clip-fastening level base cast sleeper plate for 152 mm rail base .....	17
Appendix Figure D.4-2	Clip-fastening taper base cast sleeper plate for 152 mm rail base.....	17
Appendix Figure D.4-3	Clip-fastening level base cast sleeper plate for 146 mm rail base .....	18
Appendix Figure D.4-4	Clip-fastening taper base cast sleeper plate for 146 mm rail base.....	19
Appendix Figure D.4-5	Clip-fastening level base cast sleeper plate for 127 mm rail base .....	20
Appendix Figure D.4-6	Clip-fastening taper base cast sleeper plate for 127 mm rail base.....	21
Appendix Figure D.4-7	Double-shoulder level base cast sleeper plate for 146 mm rail base .....	22
Appendix Figure D.4-8	Double-shoulder taper base cast sleeper plate for 146 mm rail base.....	23
Appendix Figure D.4-9	Double-shoulder level base cast sleeper plate for 127 mm rail base .....	24
Appendix Figure D.4-10	Double-shoulder taper base cast sleeper plate for 127 mm rail base .....	25
Appendix Figure E.4-1	Clip-fastening level base roller-steel sleeper plate for 146 mm rail base .....	27
Appendix Figure E.4-2	Clip-fastening taper base rolled-steel sleeper plate for 146 mm rail base .....	28
Appendix Figure E.4-3	Clip-fastening taper based rolled-steel sleeper plate for 127 mm rail base .....	29
Appendix Figure E.4-4	Double-shoulder level based rolled-steel sleeper plate for 146 mm rail base....	30
Appendix Figure E.4-5	Double-shoulder taper base rolled-steel sleeper plate for 146 mm rail base....	31
Appendix Figure E.4-6	Double-shoulder level base rolled-steel sleeper plate for 127 mm rail base.....	32
Appendix Figure E.4-7	Double-shoulder taper base rolled-steel sleeper plate for 127 mm rail base.....	33
Appendix Figure F.2-1	Test pieces – before and after .....	34

**Tables**

Table 5-1	Dimensional Tolerances .....	9
Table 6-1	Chemical Composition (Cast Analysis) .....	10

## Section 1 Scope and general

---

### 1.1 Scope

This Standard specifies requirements for double-shoulder and clip-fastening sleeper plates manufactured from rolled steel or from spheroidal graphite cast iron (cast sleeper plates) for use in conjunction with steel rails rolled in accordance with AS 1085.1.

The sleeper plates can also be used for rail sizes not currently covered in AS 1085.1.

### 1.2 Normative references

The following documents are referred to in the text in such a way that *some* or all of their content constitutes requirements of this document:

- AS 1085.1, *Railway Track Material – Part 1: Steel Rails*
- AS 1100, *Technical drawing*
- AS 1100.101 – *Technical drawing – Part 101, General principles*
- AS 1199, *Sampling procedures and tables for inspection by attributes*
- AS 1399, *Guide to AS 1199 - Sampling procedures and tables for inspection by attributes*
- AS 1442, *Carbon steels and carbon-manganese steels - Hot-rolled bars and semi-finished products*
- AS 1831, *Ductile cast iron*
- AS 2706, *Numerical values - Rounding and interpretation of limiting values*
- AS 3978, *Non-destructive testing – Visual inspection of metal products and components*
- ISO 9001, *Quality management systems – Requirements*
- ISO 9004, *Quality management systems – Guidelines for performance improvements*
- HB18, *Guidelines for third-party certification and accreditation*
- HB18.28, *Guidelines for third-party certification and accreditation — Guide 28: General rules for a model third-party certification system for products*

**NOTE:**

Documents for informative purposes are listed in a Bibliography at the back of the Standard.

### 1.3 Defined terms and abbreviations

For the purposes of this document, the following terms and definitions apply:

#### 1.3.1

**clip-fastening sleeper plate**

a sleeper plate that provides for resilient clips to secure the rail to the sleeper plate.

#### 1.3.2

**clip housing**

an integral part of a clip-fastening sleeper plate, one on each side of the rail seat (or more for some types), shaped to provide for the application of a resilient clip

#### 1.3.3

**double-shoulder sleeper plate**

a sleeper plate that has a raised section formed on each side of the rail seat, to locate the rail

#### 1.3.4

**plate fastening holes**

holes in the sleeper plate through which spikes, screws or bolts are applied to fasten the plate to the sleeper or rail support structure

#### 1.3.5

**rail fastening holes**

holes on each side of the rail seat of the double-shoulder plate through which rail fastening systems (e.g., spikes) are applied

#### 1.3.6

**rail seat**

the area of the plate on which the foot of the rail will be positioned

#### 1.3.7

**rail seat cant**

the slope of the rail seat (e.g., 1 in 20) which provides for the inclining of the rails towards the centre-line of the track

#### 1.3.8

**sleeper plate**

a metal plate placed between a rail and a sleeper which serves to control the position of the rail and distribute a load from the rail to the sleeper

General rail industry terms and definitions are maintained in the RISSB Glossary. Refer to:  
<https://www.rissb.com.au/products/glossary/>

## Section 2 Purpose and context of use

---

### 2.1 Function

Sleeper plates are intended to act as part of a restraining assembly to hold steel rails to timber sleepers in railway track. Sleeper plates usually have two vertical surfaces (shoulders) that bear against the edges of the rail foot, holes to allow for securing the plate to the sleeper using spikes, screws or bolts and means for securing the rail in place on the plate using a clip or dog spike.

### 2.2 Action

Sleeper plates transfer loads from the rail to the sleeper both laterally and horizontally. Loads arise from thermal effects, passage of rolling stock at speed and maintenance. The shoulders ensure that the rail remains square to the sleeper in the horizontal plane.

## Section 3 Rounding of numbers

---

For the purposes of assessing compliance with this Standard, the specified limiting values herein shall be interpreted in accordance with the 'rounding method' described in AS 2706. The observed or calculated value shall be rounded to the same number of figures as in the specified or calculated value and then compared with the specified limiting values. For example, for specified limiting values of 2.5, 2.50 and 2.500, the observed or calculated value would be rounded respectively to the nearest 0.1, 0.01 and 0.001.

## Section 4 Designation

---

The sleeper plates shall be designated by the fastening system, that is:

- (a) clip-fastening or double shoulder;
- (b) the type of rail seating (whether taper or level base);
- (c) the type of punched or formed hole;
- (d) the manufacturing method (cast or rolled);
- (e) the number of this Australian Standard; and
- (f) the nominal width of rail foot.

For example:

Clip-fastening 1-in-20 taper base D hole cast sleeper plate to AS 1085.3, for 146 mm rail base.

Further information is given in Appendix B.

## Section 5 Dimensions and tolerances

---

Dimensions and shapes shall conform to the appropriate Figure in Appendix D and Appendix E, subject to the tolerances specified in Table 5-1.

Where the rail size or other detail is not covered in this Standard, other plate dimensions may be used, provided that, to the satisfaction of the purchaser, equal or better performance has been established by design calculations and test results or the performance has been established by field testing or a case history of successful use.

NOTES:

- (a) This requirement does not preclude the negotiation between the purchaser and the manufacturer of dimensions and tolerances of holes and hole centres other than those specified herein and any special or supplementary requirements.

- (b) Sleeper plates are typically fastened to timber sleepers with spring spikes, dogspikes, screws or bolts as is the case with the examples provided in Appendix D and Appendix E; however, sleeper plates can be designed for use with alternative plate fastenings, such as screw spikes or bolts. Accordingly, the number of fastening holes and hole centre positions can also be varied from those set out in the examples provided.
- (c) Cant reducing plates might be required where the cant is set at values between the flat and maximum canted plates. Typical series for intermediate cants are as follows:
  - (i) For 1:20 canted curves: 1:30, 1:40, 1:80.
  - (ii) For 1:20 canted curves: 1:26.7, 1:40, 1:80.
  - (iii) For 1:30 canted curves: 1:40, 1:80.

Table 5-1 Dimensional Tolerances

Description	Tolerances mm
Rail seat width	+1.0 – 0.5
Rail seat flatness (Notes i and ii) No convexity allowed	1.0 max rolled plates 0.8 max cast plates
Rail seat thickness (at lowest end of cant)	+1.0 – 1.5
Rail seat cant	±1 in 400
Width	±3
Length	±3
Underside concavity	0.0 mm
Underside convexity	1.5 mm max
Size of holes (at bottom surface)	±0.0
Position of holes	±0.6
Taper of square holes (diminishing top to bottom)	0.8 max
End squareness	6.0 max
Local areas of deformation (caused by shearing and punching)	0.5 max
Unspecified tolerances	±1
Unspecified radii	3 min
<b>Dimensions common to clip- fastening</b>	
Datum “H” to heel seat	±0.5
Datum “H” to rail seat	±0.5
Rail seat boundary to clip housing centre-line	±0.5

NOTES:

- a) Tolerances applies as maximum value, except for local areas of deformation caused by searing.
- b) For interpretation, refer to AS 1100.101.

**Section 6 Materials**

**6.1 Rolled steel**

The steel used for the manufacture of rolled steel sleeper plates shall comply with the requirements of AS 1442. The steel shall be selected from the appropriate grades in Table 3 or Table 4 of AS 1442 and shall also comply with the chemical composition limits (cast analysis) as set out in Table 6-1 of this Standard.

*Table 6-1 Chemical Composition (Cast Analysis)*

Analysis, %					
Carbon	Silicon	Manganese	Phosphorus	Sulfur	Nitrogen
0.30 max	0.35 max	0.80 max	0.040 max	0.050 max	0.008 max

**6.2 Cast iron**

The material used for the manufacture of cast spheroidal graphite iron sleeper plates shall comply with the requirements of AS 1831 for Grade 500/7.

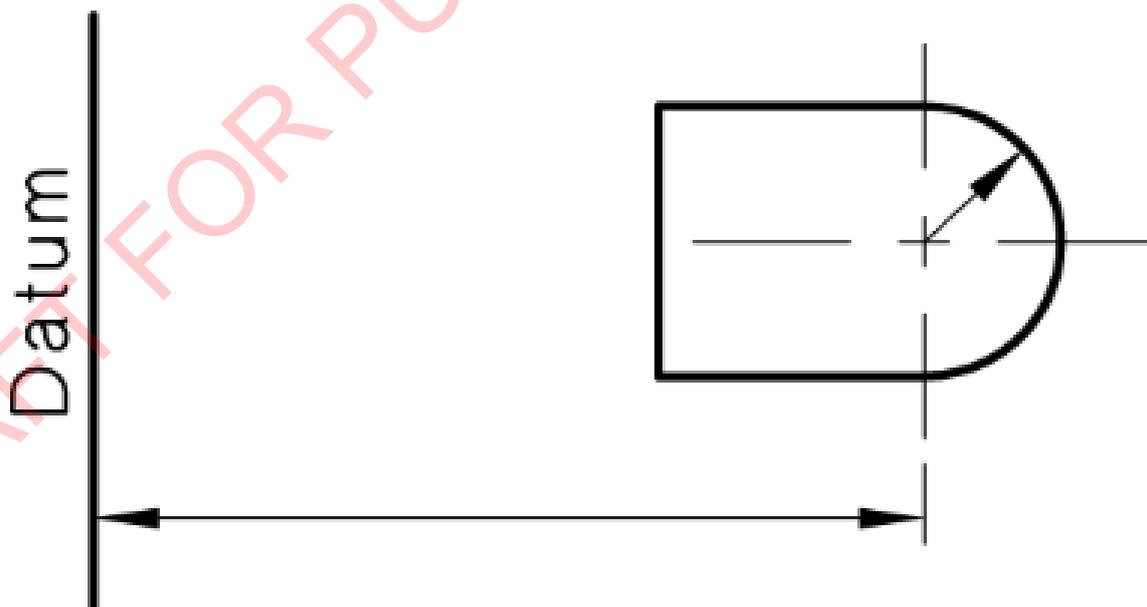
Grade 400/12 can be preferred for some applications and the appropriate grade should be specified by the purchaser.

**Section 7 Holes**

Holes adjacent to the edge of the foot of the rail may be square or D shape and the arrangement of holes can also vary (see Appendix D and Appendix E). The arrangement of holes shall be such that the edge of any hole is no less than 10 mm from an edge.

The specification of the arrangements of holes should accommodate the likelihood that spikes driven into the timber sleeper along the same grain line can encourage splitting to occur in the sleeper.

D holes shall be dimensioned as shown in Figure 7-1.



*Figure 7-1 Dimensions of D holes*

## Section 8 Finish

---

### 8.1 Rolled steel sleeper plates

The sleeper plates shall be free from injurious warp, harmful burrs and other defects detrimental to their subsequent use.

Localized areas of deformation caused by shearing and punching may be permitted as per section 5.

### 8.2 Cast sleeper plates

Cast sleeper plate shall be free of burned-on sand, cavities, blowholes, cracks or other visible surface defects. All joint line fins shall be removed.

It is not required to flush fettle in-gates, risers, or both, provided that the sleeper plate function is not impaired.

## Section 9 Testing

---

### 9.1 Bend test for rolled sleeper plates

When tested in accordance with Appendix F, rolled steel sleeper plates shall withstand the test without cracking. Superficial surface defects which become apparent on the outside surface of the specimen as a result of bending shall not be considered a cause for failure.

### 9.2 Mechanical tests for cast sleeper plates

If required, mechanical properties of the castings shall be determined in accordance with AS 1831.

### 9.3 Visual inspections of cast sleeper plates

Castings shall be visually inspected in accordance with AS 3978.

## Section 10 Marking

---

The sleeper plates shall be branded with raised characters including the following information:

- (a) The nominal width of foot of the rails with which the sleeper plates are intended to be used.
- (b) The cant.
- (c) A mark to signify the manufacturer and the last two figures of the year of manufacture.
- (d) A part or plate identification number which identifies the number, nature and position of holes. The manufacturer shall supply to the purchaser the meaning of any code used for this purpose.

Letters and figures shall be positioned on the top, outside the shoulder with the width of foot on the datum side of the sleeper plates and shall be raised a minimum of 0.5 mm from the surface as per figures in Appendix D and Appendix E. Each finished sleeper plate shall contain the full information as defined in this section.

Manufacturers making a statement of compliance with this Australian Standard on product packaging or promotional material related to that product are advised to ensure that such compliance is capable of being verified.

**Appendix A Hazard register (Informative) (Appendix Heading 1)**

Hazard number	Hazard	Heading number(s)
Insert number from Hazard Register	Insert hazard text	Insert cross-references to document text

DRAFT FOR PUBLIC CONSULTATION

## Appendix B Information to be supplied by the purchaser (Informative)

---

The following information should be supplied by the purchaser:

- (e) The designation of the sleeper plates as per section 4 including the number of this Australian Standard, i.e. AS 1085.3.
- (f) Nominal rail base width (e.g., 146 mm).
- (g) Where appropriate, the grade of cast iron if other than that given in section 6.2.
- (h) Dimensions, e.g., length, rail seat cant.
- (i) Size, position, shape and number of holes.
- (j) Quantity (mass or number of pieces).
- (k) Any exception to the requirements specified, and any special or supplementary requirements.
- (l) Any specific requirement consistent with AS 1831 for testing mechanical properties of castings (optional).

## Appendix C Means of demonstrating compliance with this standard (Informative)

---

### C.1 Scope

This Appendix sets out the following different means by which compliance with this Standard can be demonstrated by the manufacturer or supplier:

- (a) Evaluation by means of statistical sampling.
- (b) The use of a product certification scheme.
- (c) Assurance using the acceptability of the supplier's quality system.
- (d) Other such means proposed by the manufacturer or supplier and acceptable to the customer.

### C.2 Statistical sampling

Statistical sampling is a procedure which enables decisions to be made about the quality of batches of items after inspecting or testing only a portion of those items. This procedure will only be valid if the sampling plan has been determined on a statistical basis and the following requirements are met:

- (a) The sample needs to be drawn randomly from a population of product of known history. The history needs to enable verification that the product was made from known materials at essentially the same time, by essentially the same processes and under essentially the same system of control.
- (b) For each different situation, a suitable sampling plan needs to be defined. A sampling plan for one manufacturer of given capability and product throughput might not be relevant to another manufacturer producing the same items.

In order for statistical sampling to be meaningful to the customer, the manufacturer or supplier needs to demonstrate how the above conditions have been satisfied. Sampling and the establishment of a sampling plan should be carried out in accordance with AS 1199, guidance to which is given in AS 1399.

### C.3 Product certification

The purpose of product certification is to provide independent assurance of the claim by the manufacturer that products comply with the stated Standard.

The certification scheme should meet the criteria described in HB18.28 in that, as well as full type testing from independently sampled production and subsequent verification of conformance, it requires the manufacturer to maintain effective quality planning to control production.

The certification scheme serves to indicate that the products consistently conform to the requirements of the Standard.

### C.4 Supplier's quality management system

Where the manufacturer or supplier can demonstrate an audited and registered quality management system complying with the requirements of the appropriate or stipulated Australian or international Standard for a supplier's quality management system or systems, this might provide the necessary confidence that the specified requirements will be met. The quality assurance requirements need to be agreed between the customer and supplier and should include a quality or inspection and test plan to ensure product conformity.

Information on establishing a quality management system is set out in AS/NZS ISO 9001 and AS/NZS ISO 9004.

### C.5 Other means of assessment

If the above methods are considered inappropriate, compliance with the requirements of this Standard may be assessed from the results of testing coupled with the manufacturer's guarantee of product conformance.

Irrespective of acceptable quality levels (AQLs) or test frequencies, the responsibility remains with the manufacturer or supplier to supply products that conform to the full requirements of the Standard.

DRAFT FOR PUBLIC CONSULTATION

## Appendix D Cast sleeper plate profiles and section properties (Normative)

### D.1 Scope

This Appendix provides profile details for the following types of cast sleeper plate:

- (a) Clip-fastening sleeper plate.
- (b) Double-shoulder sleeper plate.

### D.2 Hole patterns

Spike hole patterns shown are typical only and holes can vary in position, dimension and number. For example, D holes might be required for dog spike holes or round holes required for screw spikes.

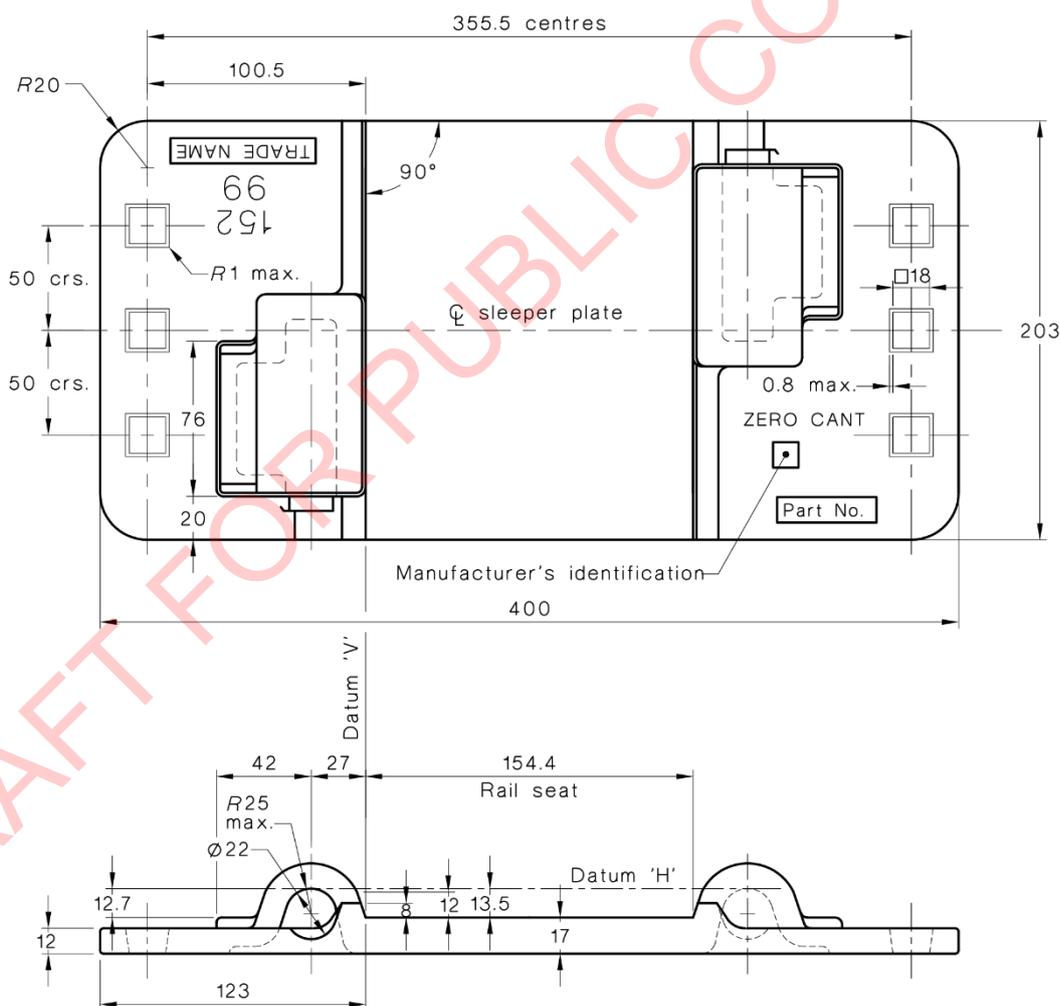
Hole positions may be 'left-handed' or 'right-handed' depending on the needs of the purchaser.

### D.3 Clip-fastening sleeper plate

Profile details for cast clip-fastening sleeper plates shall be as shown in Figures D1 to D6, as applicable.

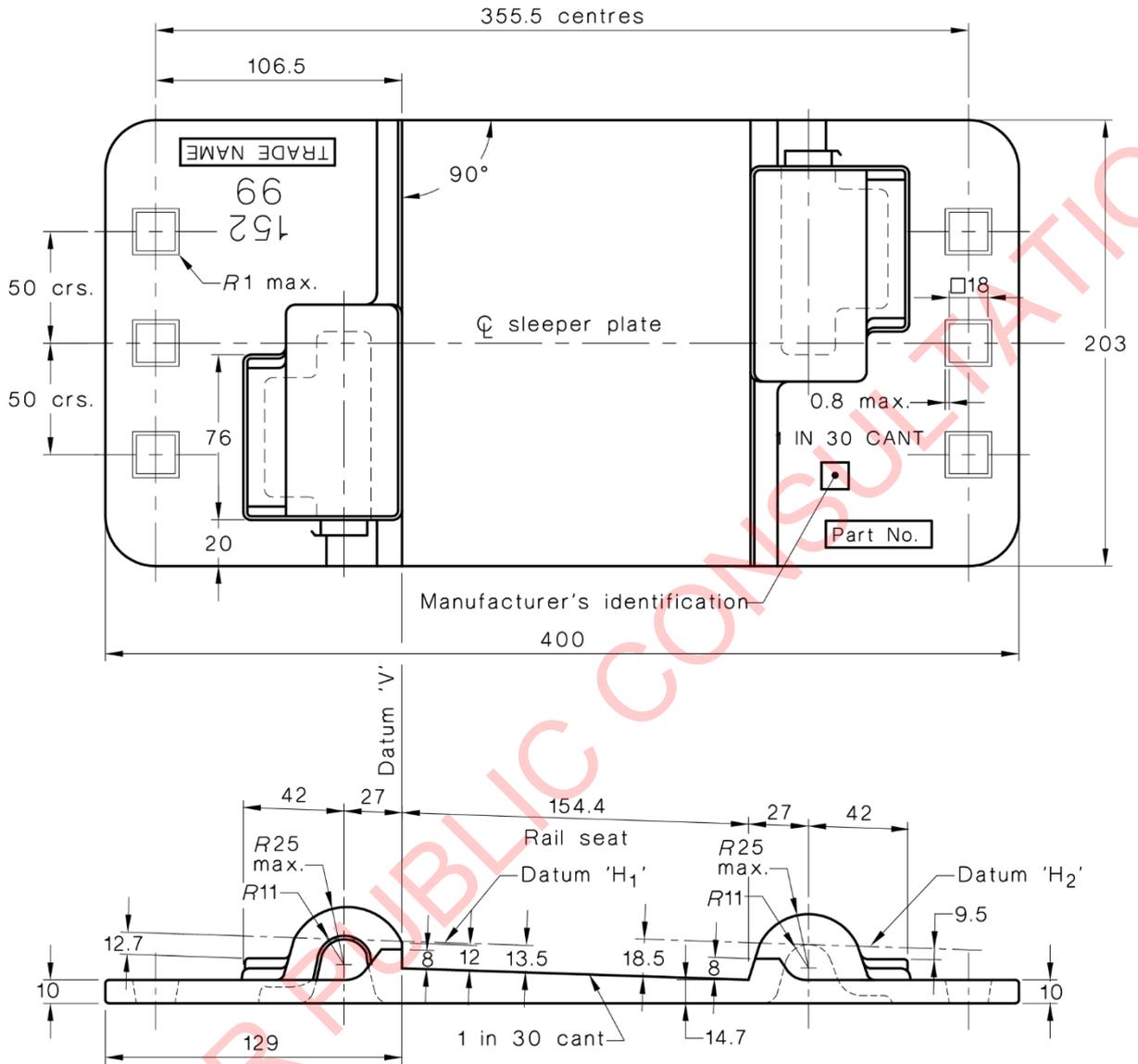
### D.4 Double-shoulder sleeper plate

Profile details for cast double-shoulder sleeper plates shall be as shown in Figures D7 to D10, as applicable.



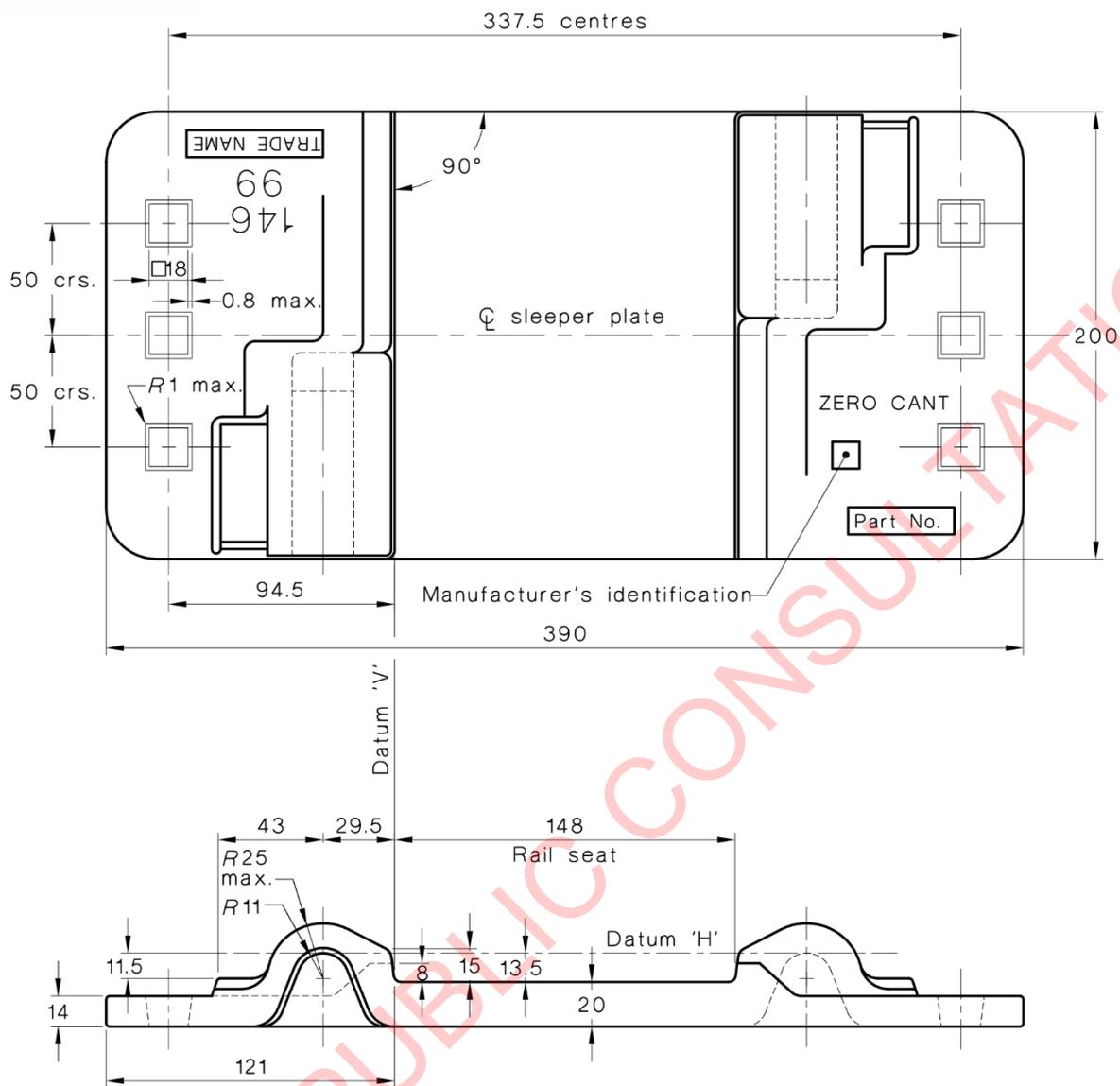
Appendix Figure D.4-1 Clip-fastening level base cast sleeper plate for 152 mm rail base

Dimensions in millimetres

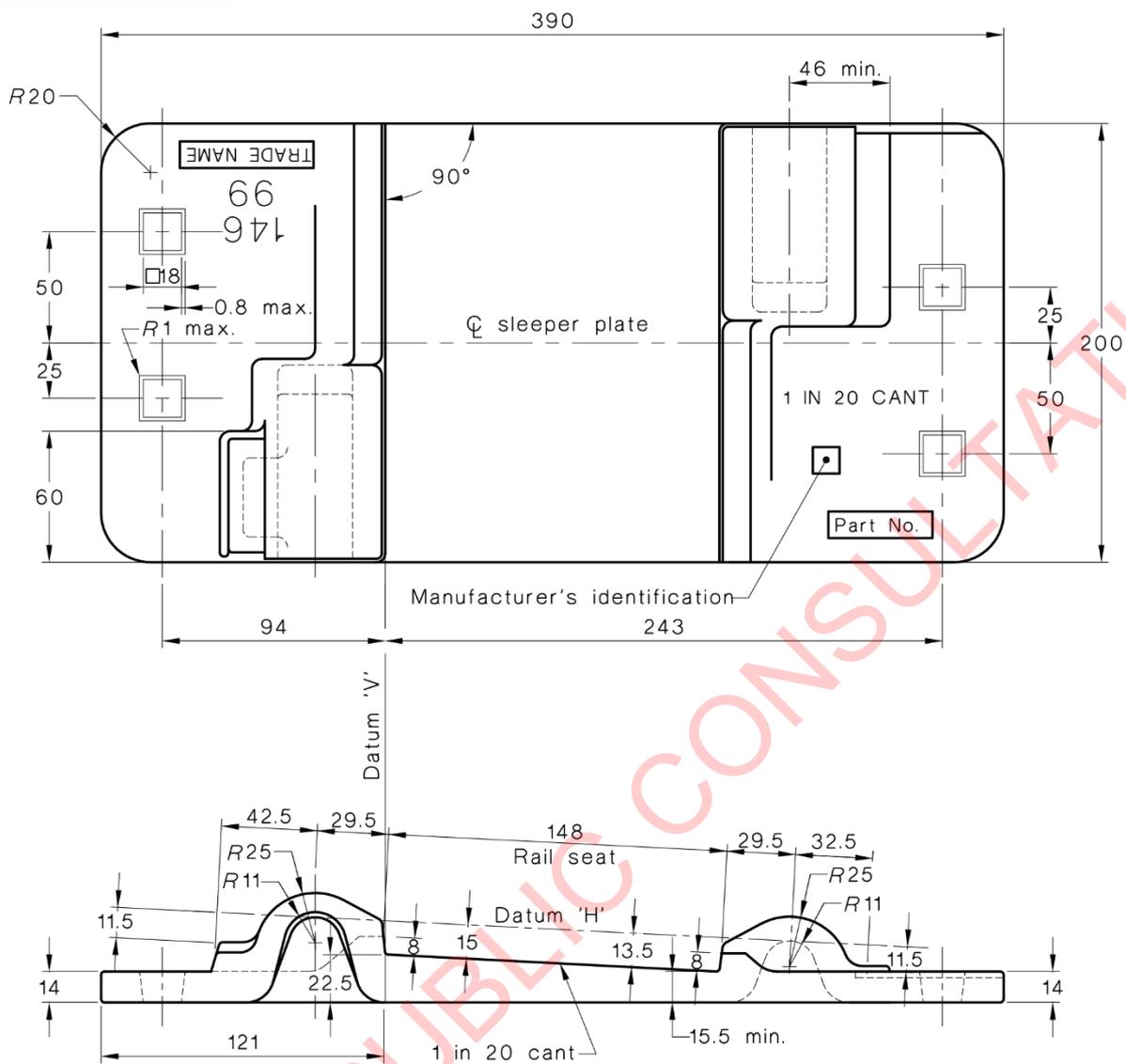


Appendix Figure D.4-2 Clip-fastening taper base cast sleeper plate for 152 mm rail base

Dimensions in millimetres

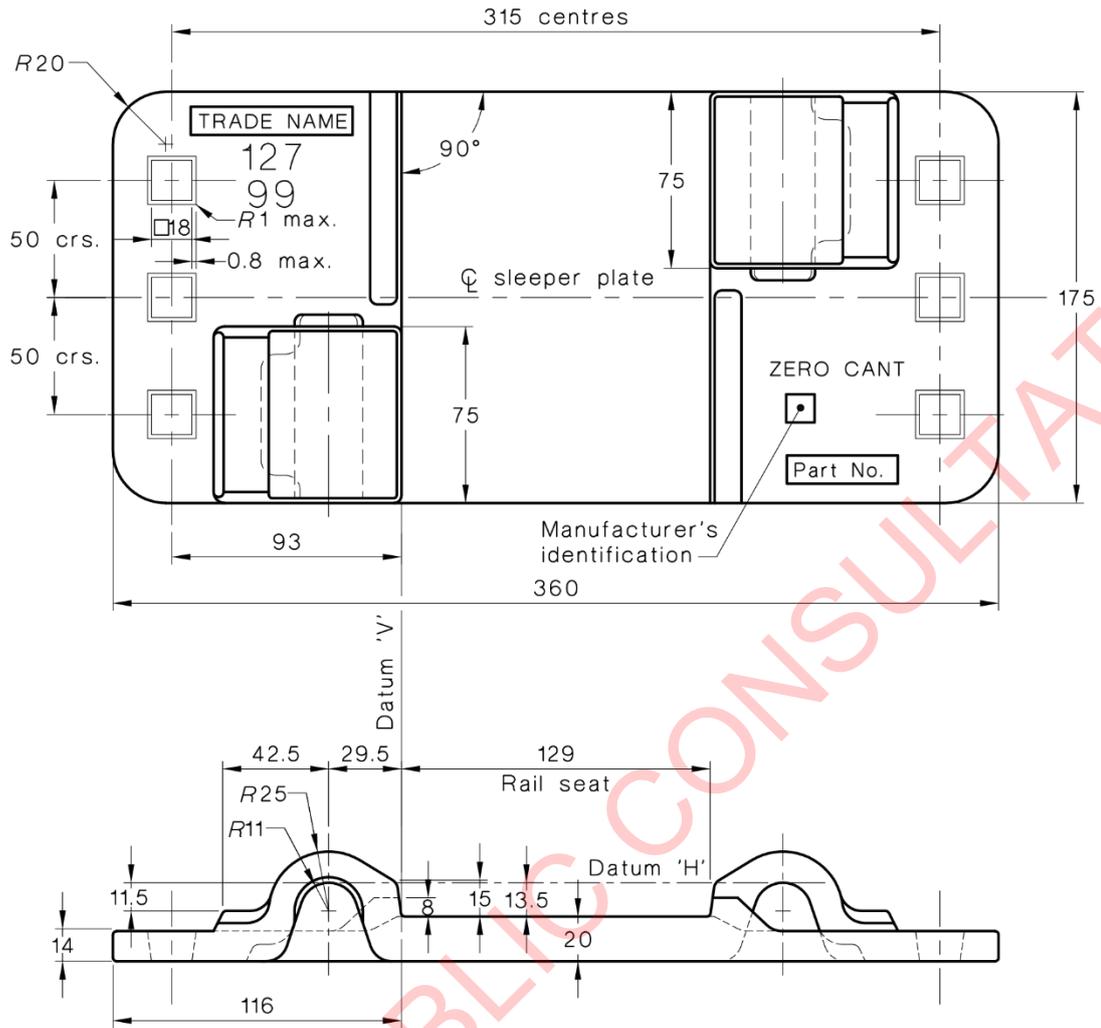


Appendix Figure D.4-3 Clip-fastening level base cast sleeper plate for 146 mm rail base  
Dimensions in millimetres

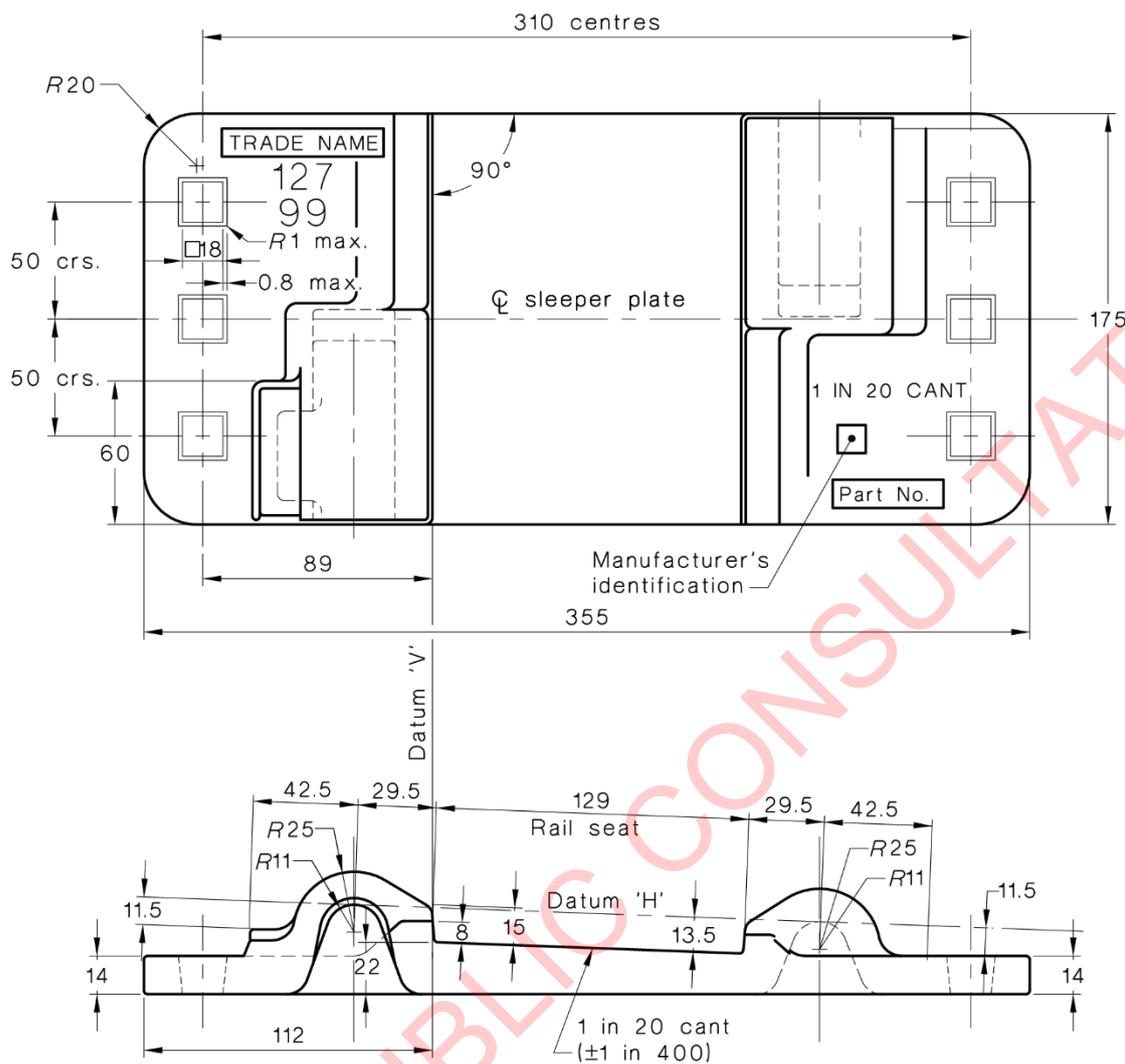


Appendix Figure D.4-4 Clip-fastening taper base cast sleeper plate for 146 mm rail base

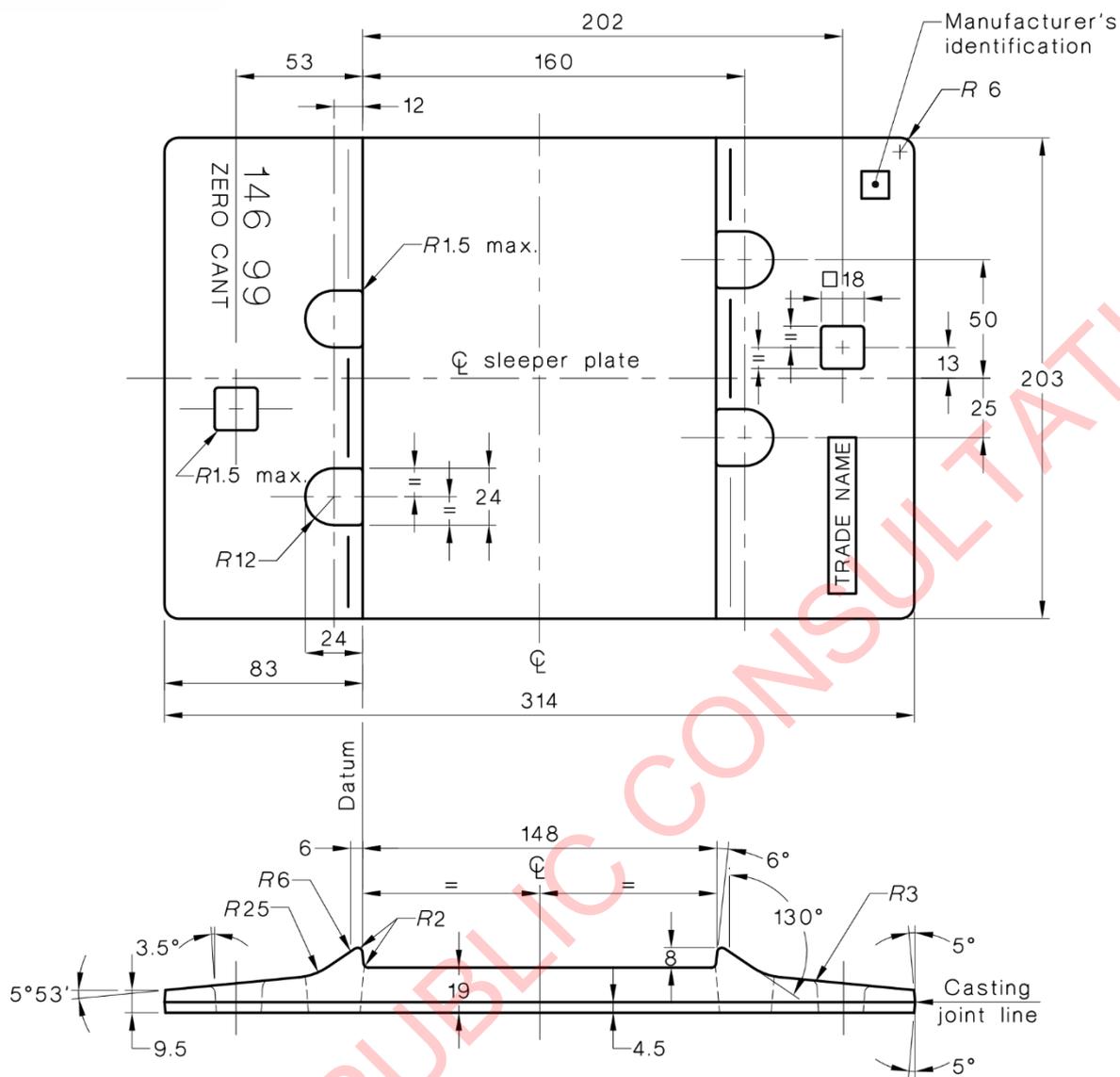
Dimensions in millimetres.



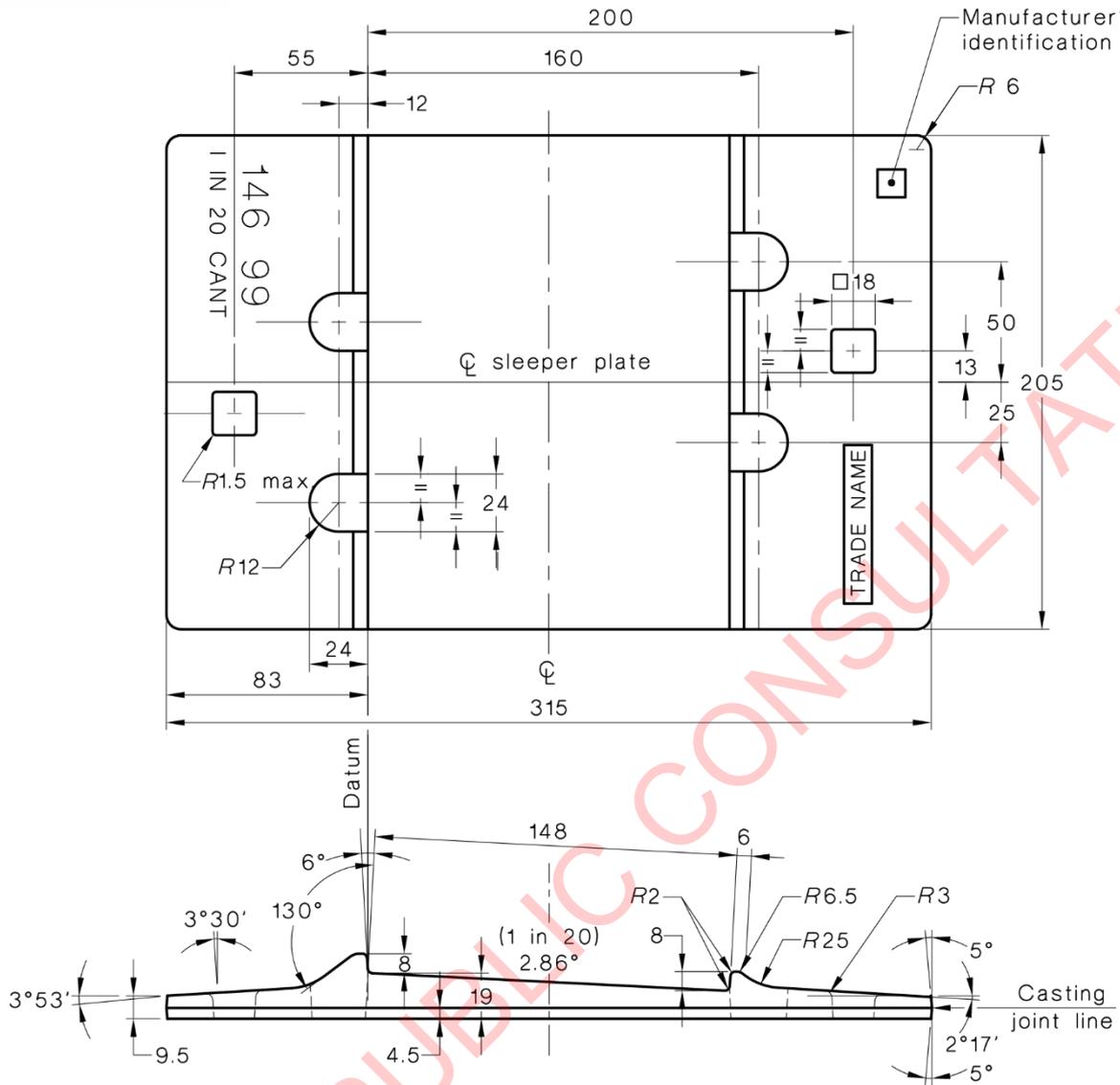
Appendix Figure D.4-5 Clip-fastening level base cast sleeper plate for 127 mm rail base  
Dimension in millimetres.



Appendix Figure D.4-6 Clip-fastening taper base cast sleeper plate for 127 mm rail base  
Dimensions in millimetres.

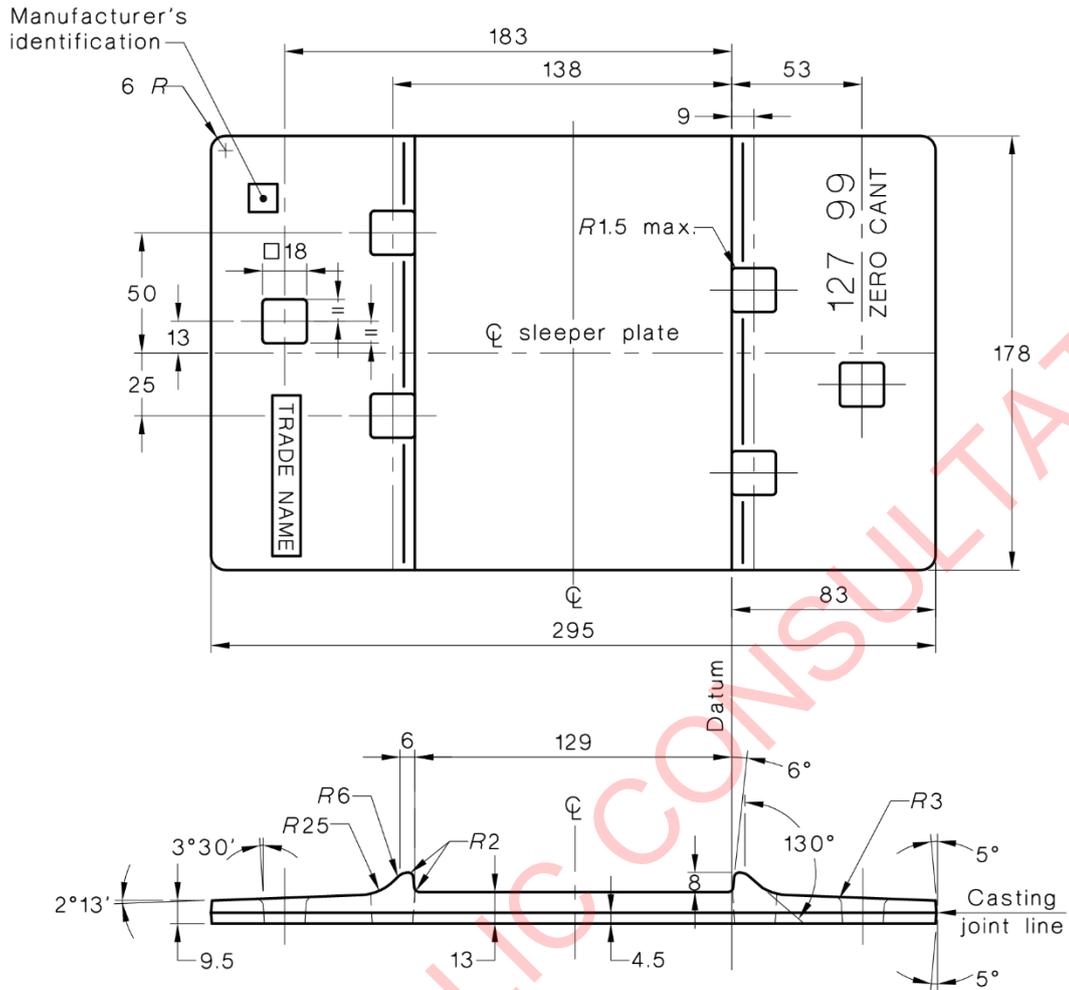


Appendix Figure D.4-7 Double-shoulder level base cast sleeper plate for 146 mm rail base  
Dimensions in millimetres

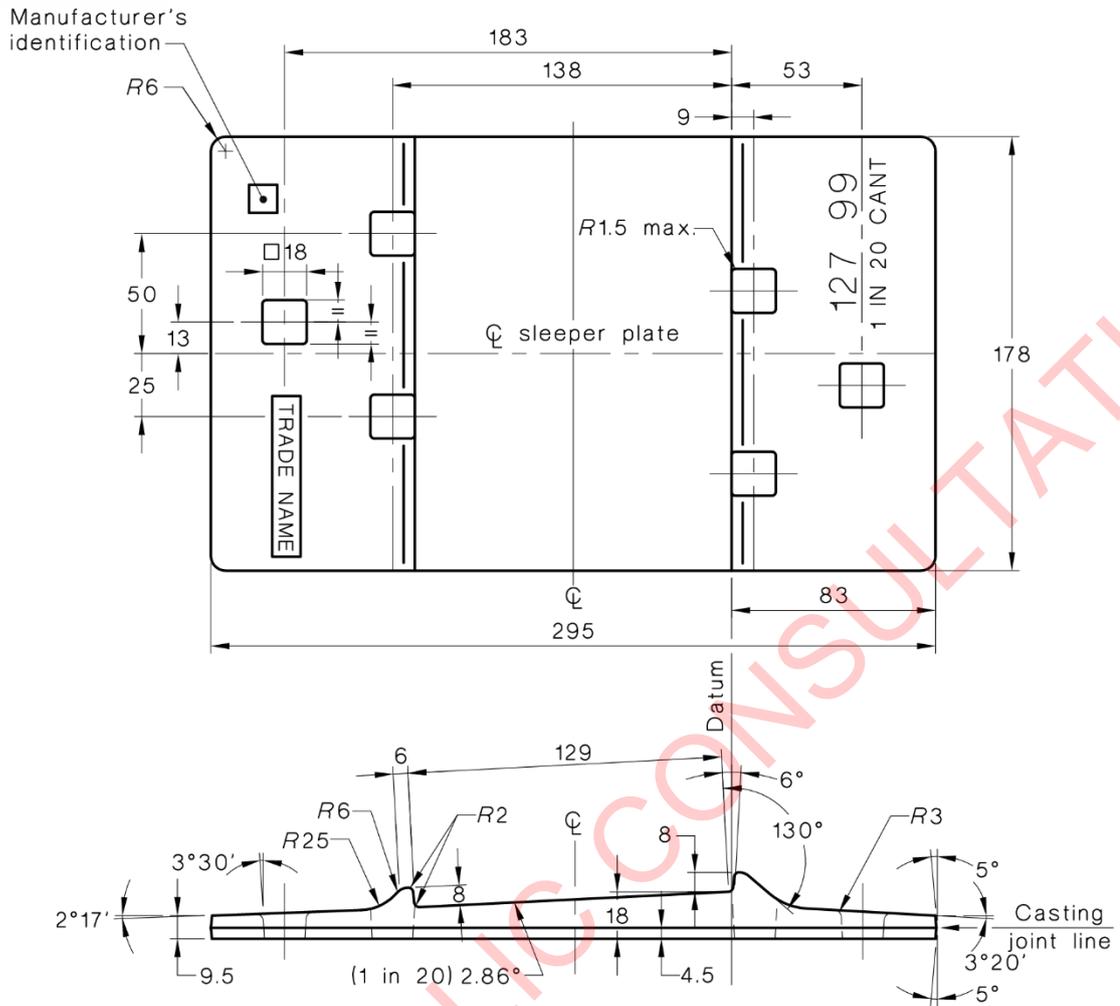


Appendix Figure D.4-8 Doubler-shoulder taper base cast sleeper plate for 146 mm rail base.

Dimensions in millimetres



Appendix Figure D.4-9 Double-shoulder level base cast sleeper plate for 127 mm rail base  
Dimensions in millimetres



Appendix Figure D.4-10 Double-shoulder taper base cast sleeper plate for 127 mm rail base  
Dimensions in millimetres

## Appendix E Rolled steel sleeper plate profiles and section properties (Normative)

---

### E.1 Scope

This Appendix provides profile details for the following types of rolled sleeper plate:

- (a) Clip-fastening sleeper plate
- (b) Double-shoulder sleeper plate

### E.2 Hole patterns

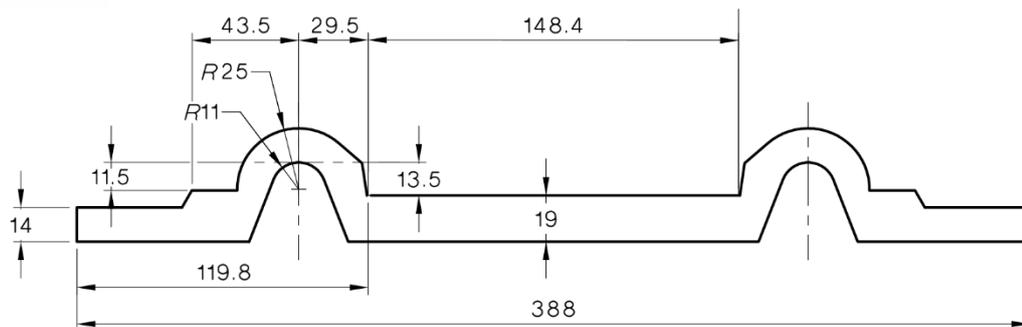
Spike hole patterns shown are typical only and holes can vary in position, dimension and number. For example, D holes might be required for dog spike holes or round holes required for screw spikes. Also hole positions may be 'left-handed' or 'right-handed' depending on the needs of the purchaser.

### E.3 Clip-fastening sleeper plate

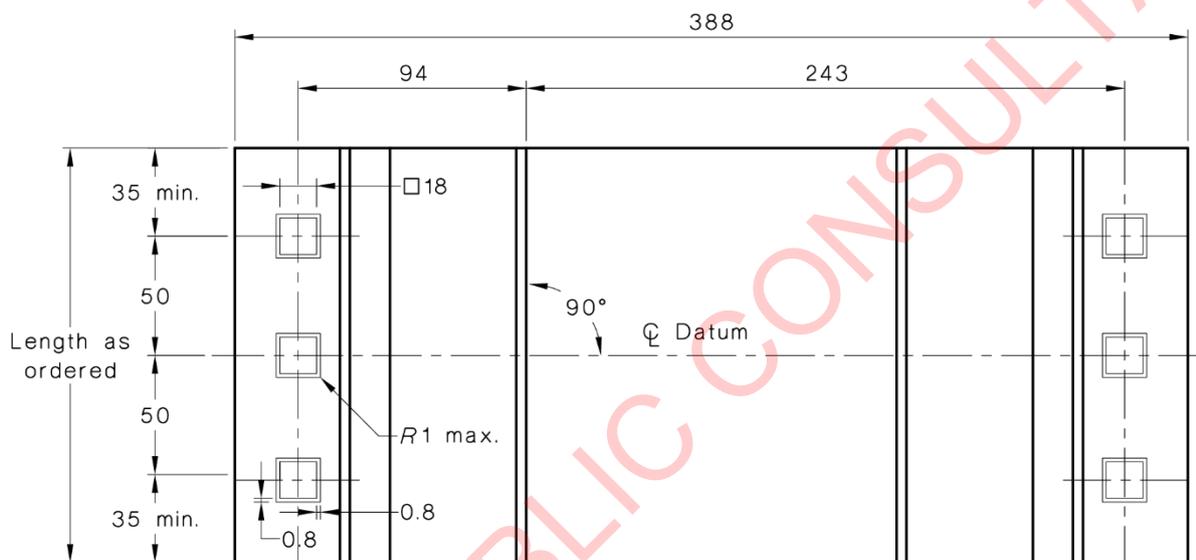
Profile details for clip-fastening sleeper plates shall be as shown in Appendix Figures E.11 to Appendix Figure E.3, as applicable.

### E.4 Double-shoulder sleeper plate

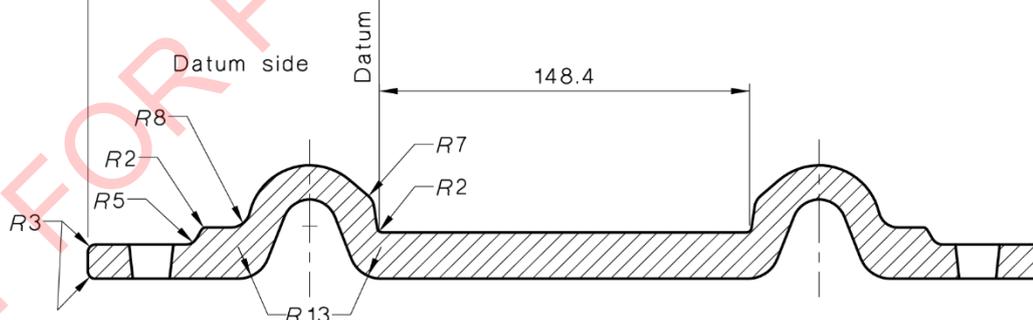
Profile details for double-shoulder sleeper plates shall be as shown in Figures E4 to E7, as applicable.



(a) Development of plate



(b) Top view

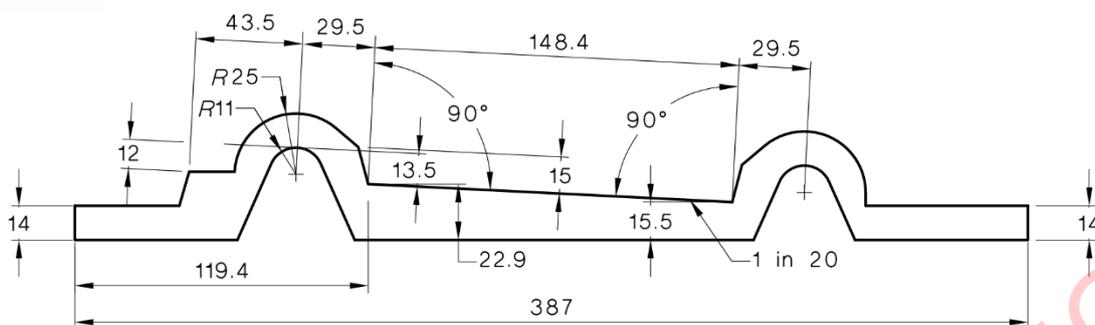


(c) Section

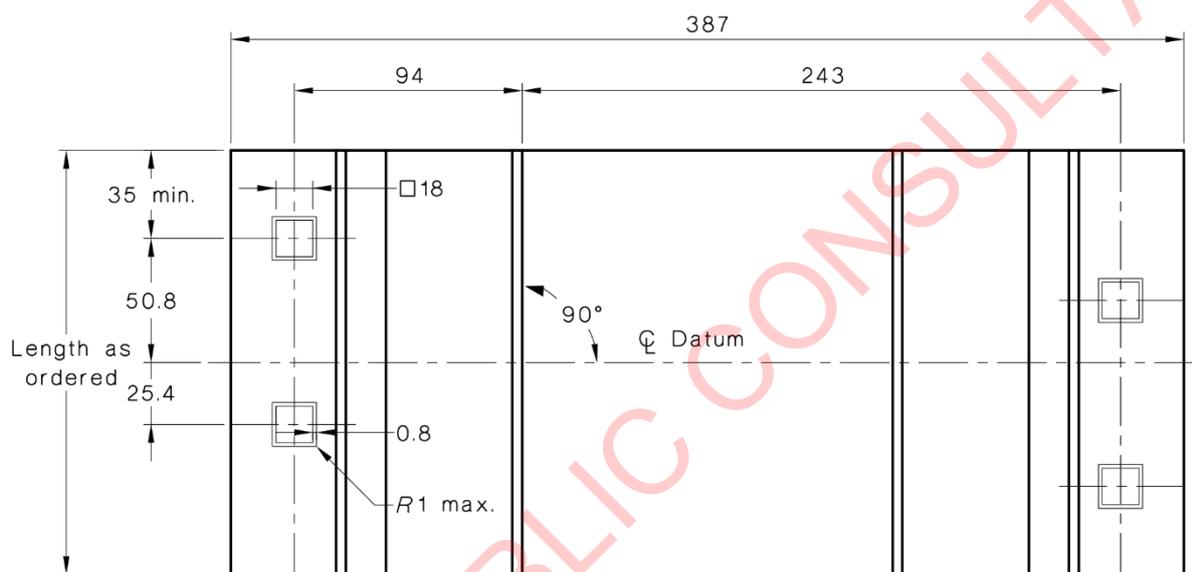
Nominal mass 59 kg/m

Appendix Figure E.4-1 Clip-fastening level base roller-steel sleeper plate for 146 mm rail base

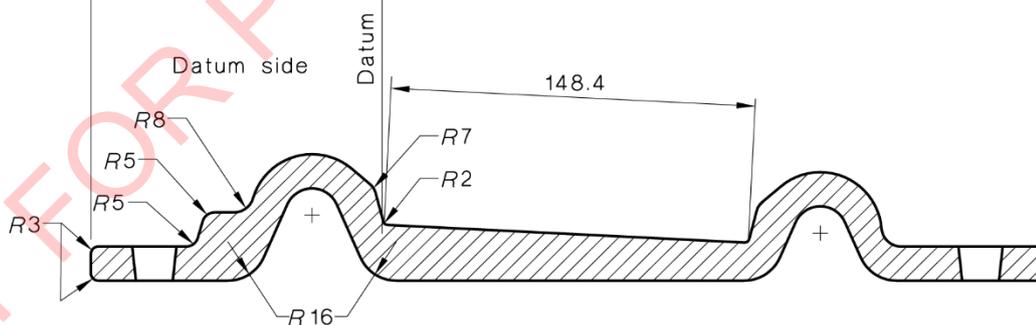
Dimensions in millimetres



(a) Development of plate



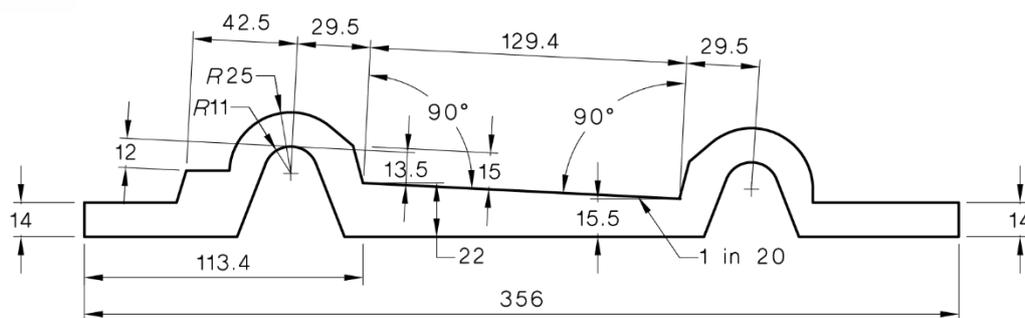
(b) Top view



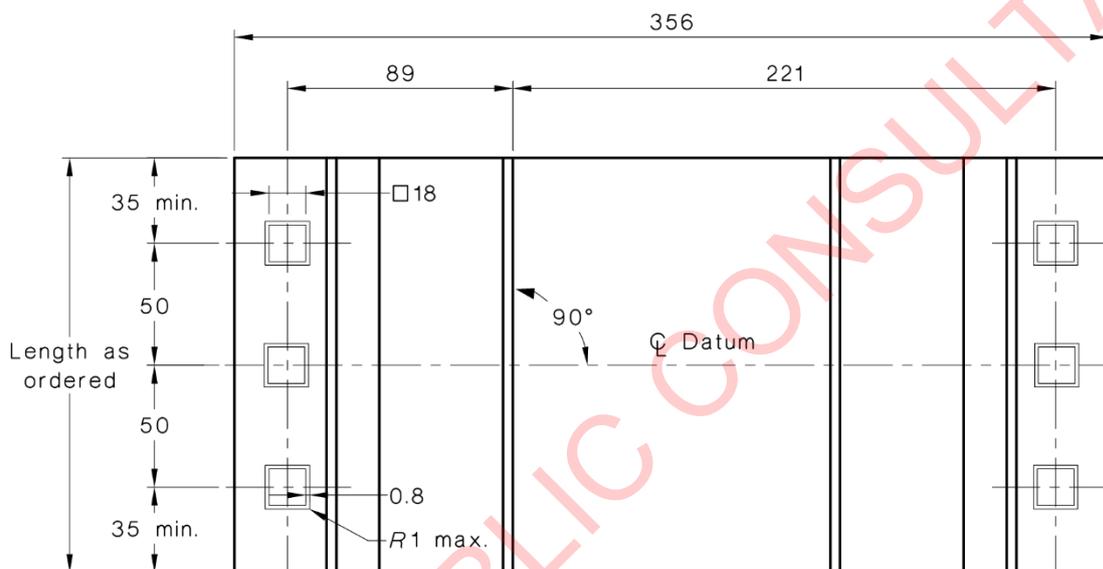
(c) Section

Nominal mass 59 kg/m

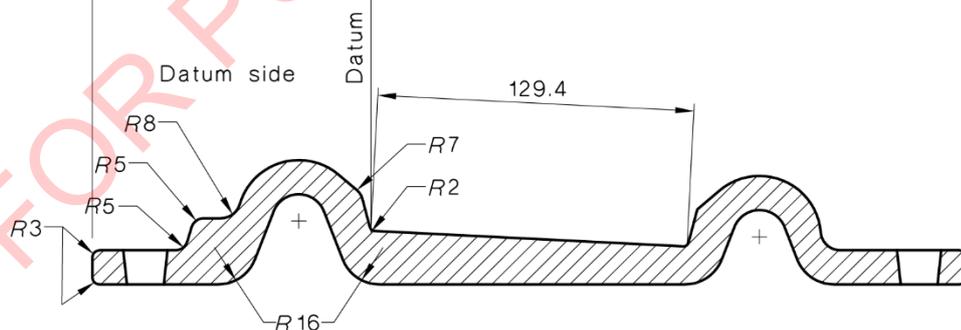
Appendix Figure E.4-2 Clip-fastening taper base rolled-steel sleeper plate for 146 mm rail base  
Dimensions in millimetres



(a) Development of plate



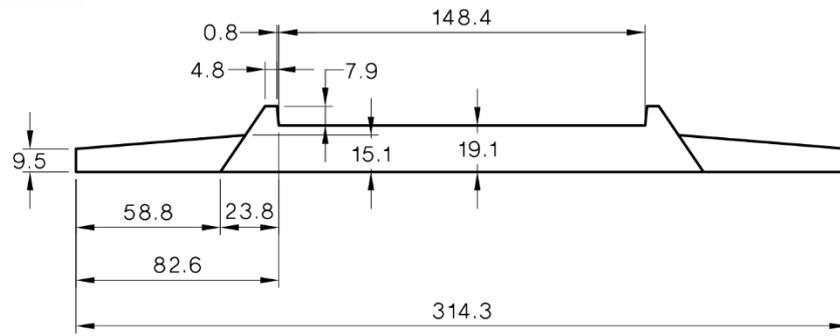
(b) Top view



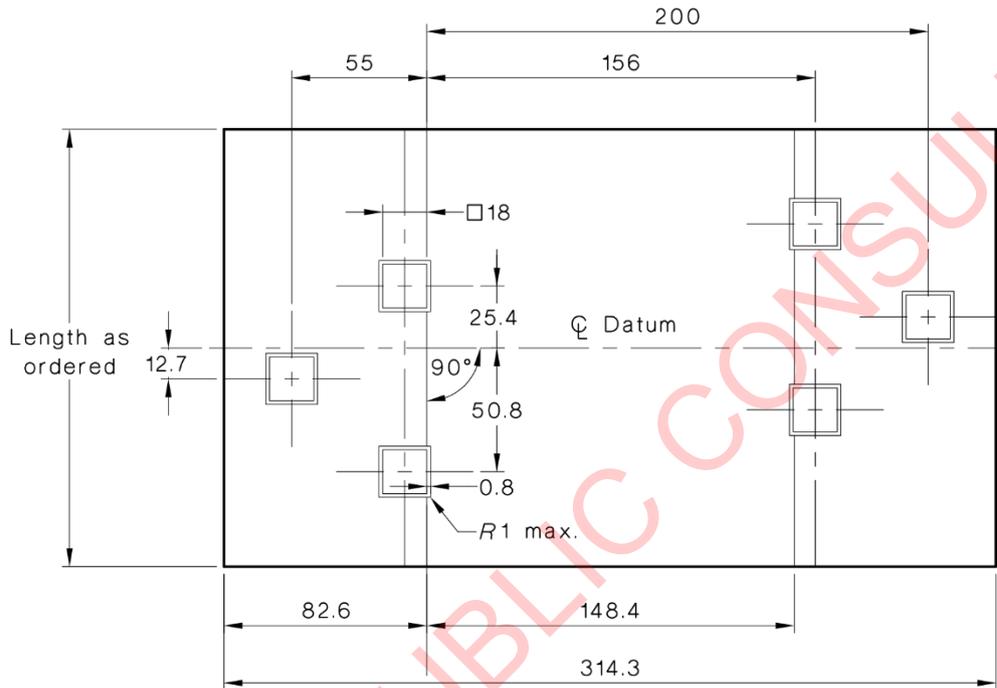
(c) Section

Nominal mass 54 kg/m

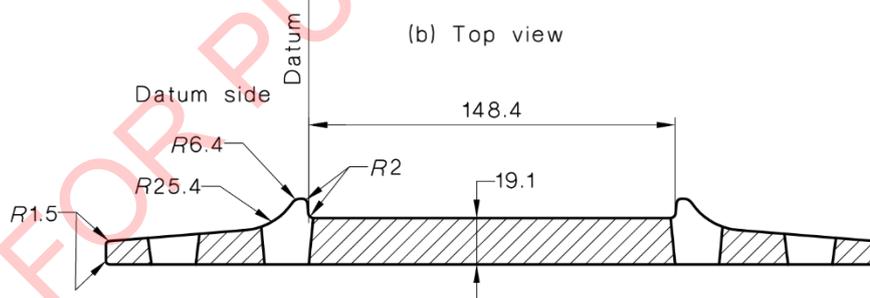
Appendix Figure E.4-3 Clip-fastening taper based rolled-steel sleeper plate for 127 mm rail base  
Dimensions in millimetres



(a) Development of plate



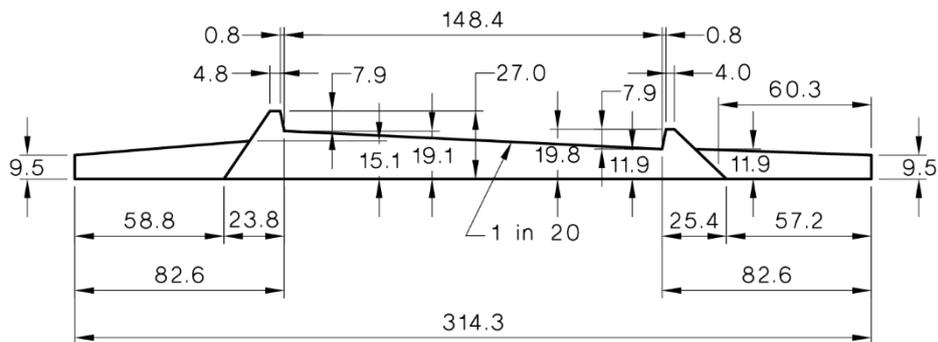
(b) Top view



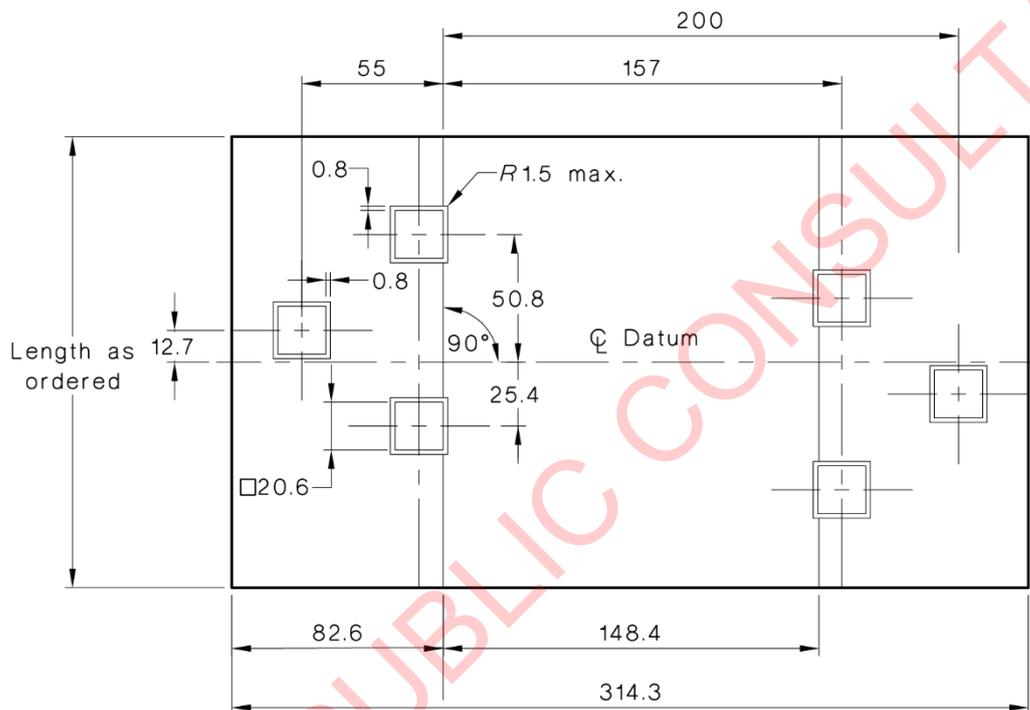
(c) Section

Nominal mass 40 kg/m

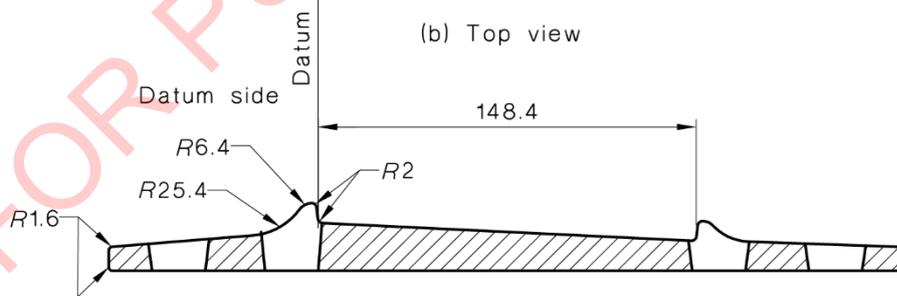
Appendix Figure E.4-4 Double-shoulder level based rolled-steel sleeper plate for 146 mm rail base  
Dimensions in millimetres



(a) Development of plate



(b) Top view

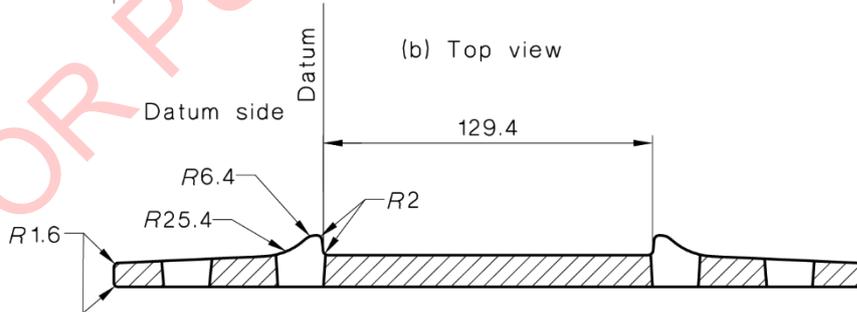
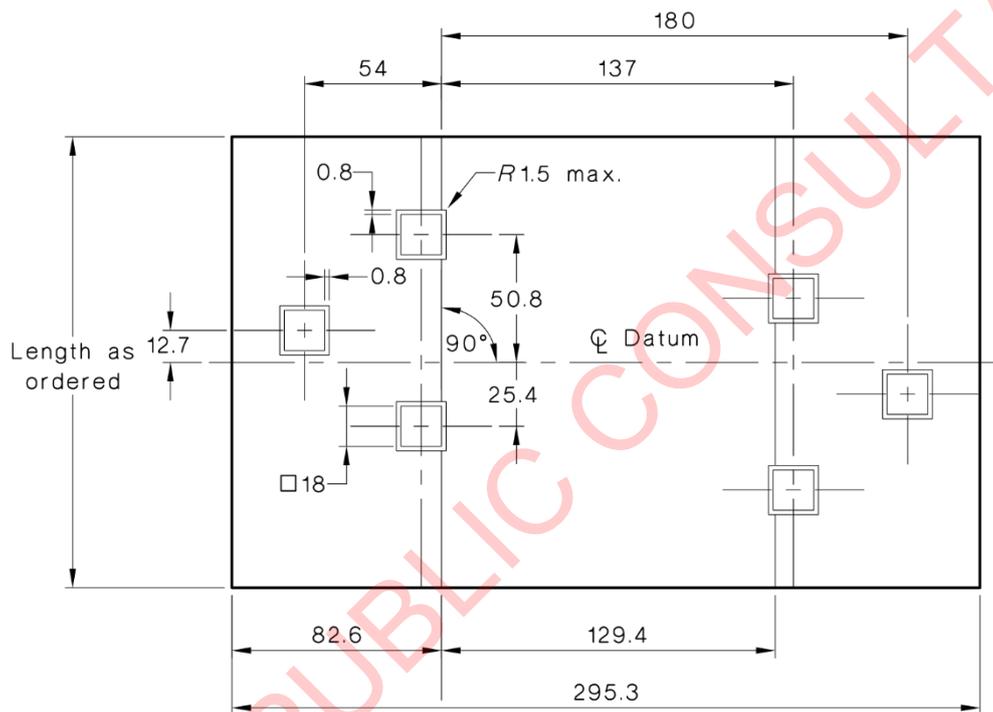
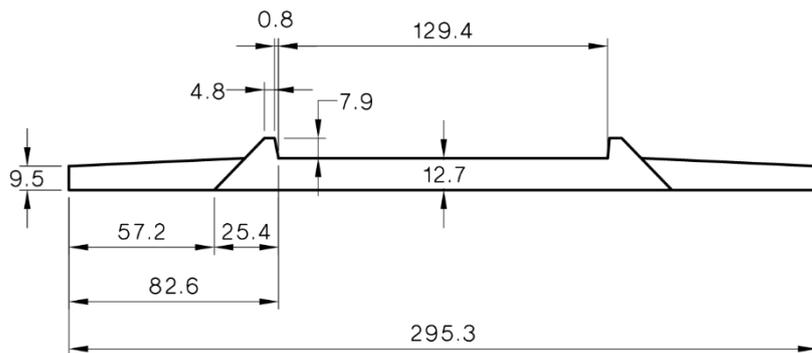


(c) Section

Nominal mass 35 kg/m

Appendix Figure E.4-5 Double-shoulder taper base rolled-steel sleeper plate for 146 mm rail base

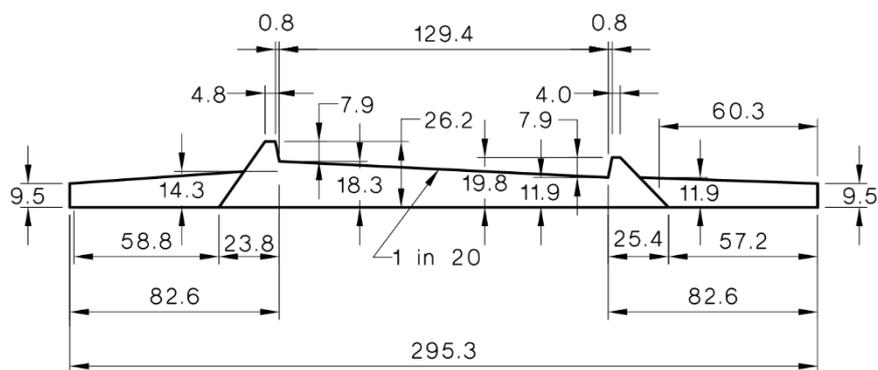
Dimensions in millimetres



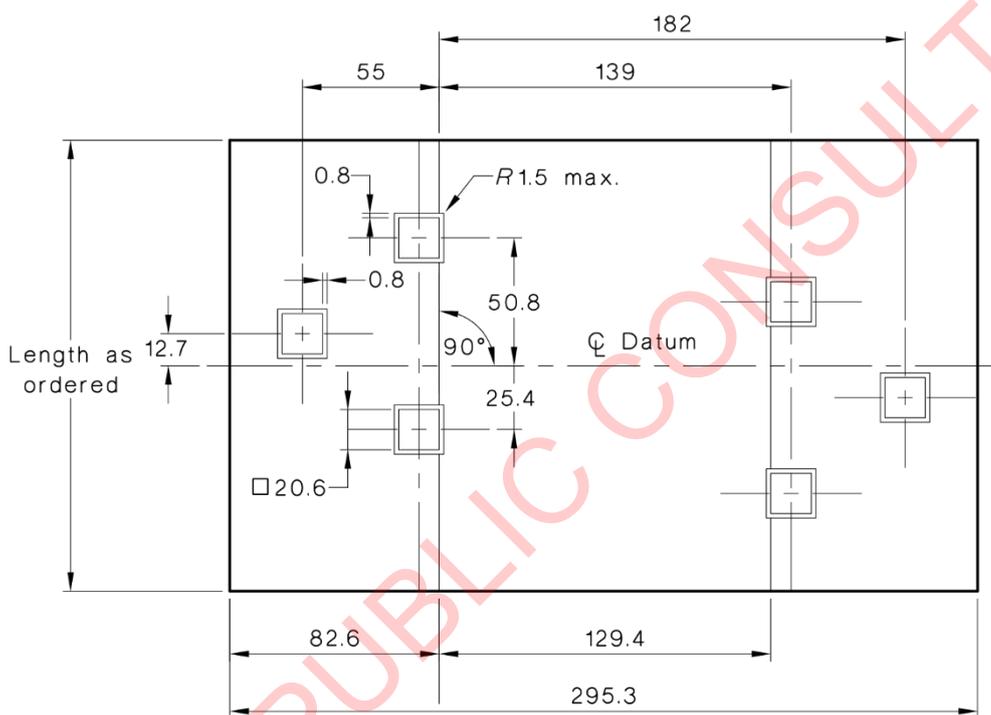
Nominal mass 29 kg/m

Appendix Figure E.4-6 Double-shoulder level base rolled-steel sleeper plate for 127 mm rail base

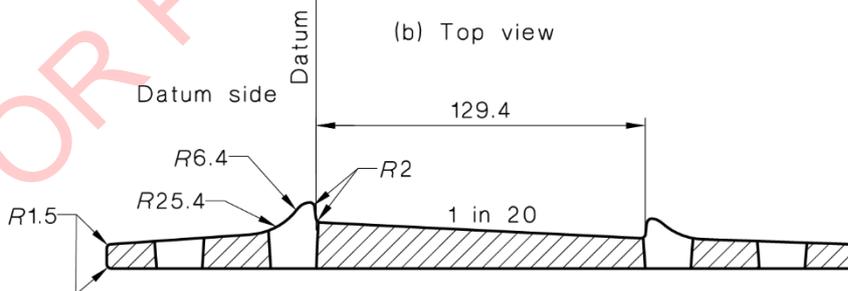
Dimensions in millimetres



(a) Development of plate



(b) Top view



(c) Section

Nominal mass 32 kg/m

Appendix Figure E.4-7 Double-shoulder taper base rolled-steel sleeper plate for 127 mm rail base  
Dimensions in millimetres

## Appendix F Bend test for rolled steel sleeper plates (Normative)

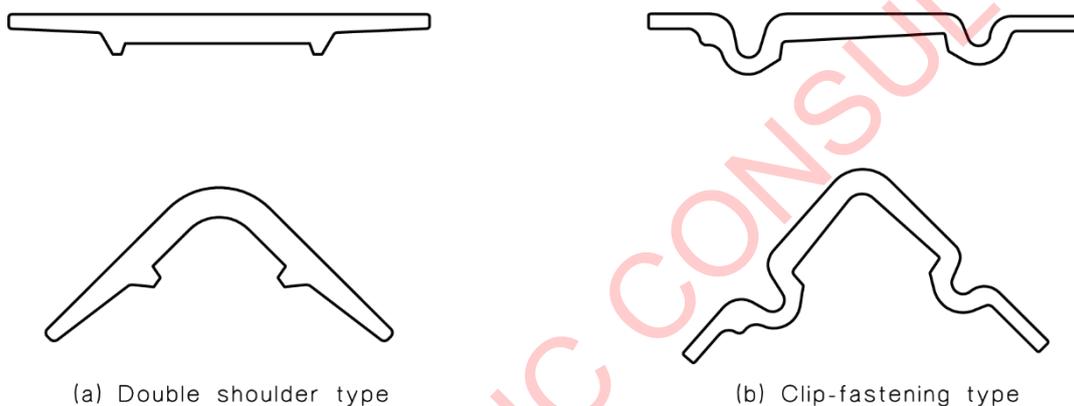
### F.1 Preparation of test piece

Full section samples for bend testing shall be cut transversely from the as-rolled bar, or from a finished sleeper plate. Full cross-section test pieces  $40 \pm 2$  mm in the rolling direction shall be used for the bend test.

### F.2 Test procedure

The test piece shall be bent through 90 degrees around a former of diameter not greater than the thickness of the test piece (measured at the centre of the rail seat position), with the rail seat surface as shown in Figure F-1, parts (a) and (b).

The test shall be carried out at a temperature of between  $4^{\circ}\text{C}$  and  $40^{\circ}\text{C}$  unless otherwise agreed. In the event of a dispute, the temperature of the test piece at the beginning of the test shall be  $20 \pm 5^{\circ}\text{C}$ .



Appendix Figure F.2-1 Test pieces – before and after