

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS E 1307 : 1999

**Guards for turnouts and crossings—
Shapes and dimensions**

ICS 45.080

Descriptors : designations, shape, dimensions, point work, turnouts, diamond crossings

Reference number : JIS E 1307 : 1999 (E)

PROTECTED BY COPYRIGHT

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Transportation through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

Date of Establishment: 1975-04-01

Date of Revision: 1999-07-21

Date of Public Notice in Official Gazette: 1999-08-04

Investigated by: Japanese Industrial Standards Committee

Divisional Council on Railways and Rolling
Stock

JIS E 13067:1999, First English edition published in 2004-06

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

Guards for turnouts and crossings— Shapes and dimensions

Introduction This Japanese Industrial Standard has been prepared for the chief purpose of ensuring safety in the wheel operation, relating to the shapes and dimensions of guards for railway turnouts and crossings, established in 1975. As to this revision, while inquiries have been made to **ISO** and **UIC**, no International Standard corresponding to this Standard has been established.

1 Scope This Standard specifies the shapes and dimensions of guards for railway turnouts and crossings of 1 067 mm and 1 435 mm gauges (hereafter referred to as “guards”). This Standard, however, does not apply to the crossings of Shinkansen railways, being based on the National Shinkansen Network Law.

2 Normative reference The following standard contains provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent edition of the standard indicated below shall be applied.

JIS E 1304 *Dimension of turnouts and crossings*

3 Shapes and dimensions of guards For the purpose of this Standard, Table 1 gives the shapes and dimensions of guards.

The classification of geometries is according to **JIS E 1304**.

Table 1 Shapes and dimensions of guards

Gauge	Name of turnouts and crossings	Type of geometry		Type of rail	Application	Attached Figure No.		Remarks	(informative) Type name of guard ⁽¹⁾	
		Geometrical division	Structural division			Guard	Components			
1 067	Simple turnout	Using tangential curved tongue rail	Articulated switch	40 kgN	Main line	1	1.1 to 1.3, 1.5 to 1.7		C type	
					Branch line	3				
				50 kgN	Main line	2	1.1, 1.2, 1.4 to 1.7			
					Branch line	3				
			Flexible switch	50 kgN	Main line	4	4.1, 4.3, 4.5		H type	
					Branch line	5				
				60 kg	Main line	4	4.2 to 4.4			
					Branch line	6				
			Flexible switch reduced slack type	50 kgN	Main line	4	4.1, 4.3, 4.5			
					Branch line	5				
				60 kg	Main line	4	4.2 to 4.4			
					Branch line	6				
		Using intersecting curved tongue rail	50 kgN	Main line	2	1.1, 1.2, 1.4 to 1.7		C type		
				Branch line	3					
			60 kg	Main line	4	4.2 to 4.4				H type
				Branch line	6					
		Using straight tongue rail	Loose heel switch	40 kgN	Main line	8	1.2, 1.3, 1.5, 1.6, 8.1, 8.2		C type	
					Branch line					
				50 kgN	Main line		1.2, 1.4 to 1.6, 8.1, 8.2			
					Branch line					
				30 kg	Main line	9	9.1, 9.3, 9.5 to 9.9		A type	
					Branch line					
				37 kg	Main line		9.2, 9.4 to 9.9			
					Branch line					

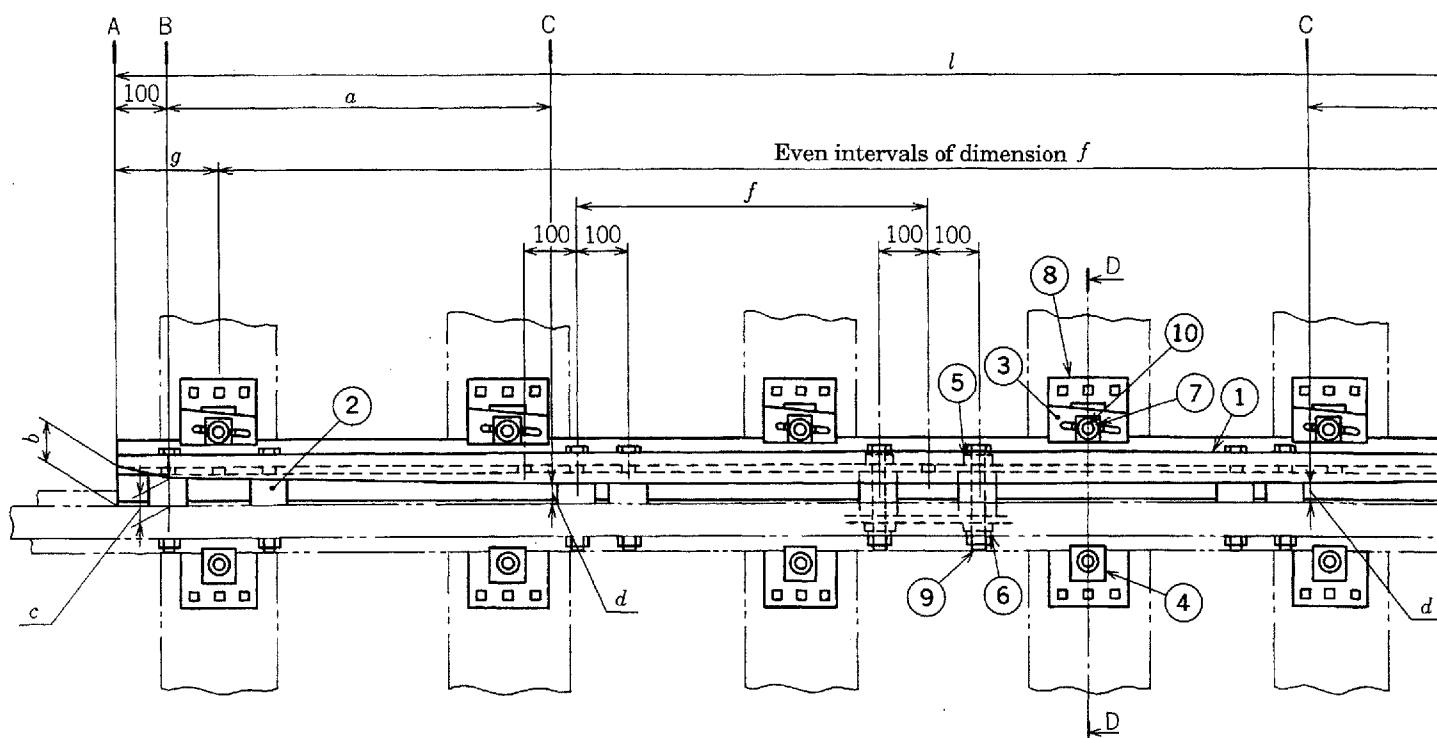
Table 1 (continued)

Gauge	Name of turnouts and crossings	Type of geometry		Type of rail	Application	Attached Figure No.		Remarks	(informative) Type name of guard(1)
		Geometrical division	Structural division			Guard	Components		
1 067	Symmetrical turnout	Using tangential curved tongue rail	Articulated switch	40 kgN		3	1.1 to 1.3, 1.5 to 1.7		C type
				50 kgN			1.1, 1.2, 1.4 to 1.7		
		Using intersecting curved tongue rail	Flexible switch	50 kgN		5	4.1, 4.3, 4.5		H type
				60 kg		6	4.2 to 4.4		
				60 kg		6	4.2 to 4.4		
	Diamond crossing		Rigid obtuse crossing	40 kgN		1	1.1 to 1.3, 1.5 to 1.7		C type
				50 kgN		1	1.1, 1.2, 1.4 to 1.7		
				60 kg		7	4.2 to 4.4		H type
			Articulated movable obtuse crossing	40 kgN		1	1.1 to 1.3, 1.5 to 1.7		C type
				50 kgN		2	1.1, 1.2, 1.4 to 1.7		
	Run-over type turnout		Flex. movable obtuse crossing	60 kg		4	4.2 to 4.4		H type
			Run-over type switch	40 kgN	Branch line	10	1.1, 10.1, 10.3 to 10.5		C type
				50 kgN			1.1, 10.2 to 10.4, 10.6		
				50 kgN		11	1.1, 11.1, 10.3, 10.4, 11.2		

Table 1 (concluded)

Gauge	Name of turnouts and crossings	Type of geometry		Type of rail	Application	Attached Figure No.		Remarks	(informative) Type name of guard ⁽¹⁾
		Geometrical division	Structural division			Guard	Components		
1 435	Simple turnout	Using tangential curved tongue rail	Articulated switch	40 kgN	Main line	1	1.1 to 1.3, 1.5 to 1.7		C type
					Branch line	3			
				50 kgN	Main line	1	1.1, 1.2, 1.4 to 1.7	Apply to No. 6	
					2		Apply to No. 7 and more		
				Branch line	3				
			50 kgN	Main line	4	4.1, 4.3, 4.5			
		Using intersecting curved tongue rail	Flexible switch	60 kg	Branch line	5			H type
					Main line	4	4.2 to 4.4		
					Branch line	6			
			Flexible switch reduced slack type	60 kg	Main line	4	4.2 to 4.4		
					Branch line	6			
					Main line	4	4.2 to 4.4		
Using tangential curved tongue rail	Flexible switch	60 kg	Main line	4	4.2 to 4.4		C type		
			Branch line	6					
			Main line	4	4.2 to 4.4				
	Articulated switch	40 kgN		3	1.1 to 1.3, 1.5 to 1.7				
		50 kgN			1.1, 1.2, 1.4 to 1.7				
Diamond crossing		Rigid obtuse crossing	40 kgN		1	1.1 to 1.3, 1.5 to 1.7			
			50 kgN		2	1.1, 1.2, 1.4 to 1.7			
		Articulated movable obtuse crossing	50 kgN		2	1.1, 1.2, 1.4 to 1.7			
Run-over type turnout		Run-over type switch	40 kgN	Branch line	10	1.1, 10.1, 10.3 to 10.5			
			50 kgN			1.1, 10.2 to 10.4, 10.6			

Note ⁽¹⁾ Type names of guard, A, C and H types, are given alphabetically in the order designed.



1.1 Simple turnout

(with tangential curved tongue rail and articulated switch)

Gauge	Rail type	Number	l	a	b	c	d	e
1 067	40 kgN	8	2 700	750	80	57	42	44.2
		10						
		12						
		14	3 200	750	80	57	42	44.2
		16						
1 435	40 kgN	6	1 800	450	77	54	39	44.2
		7						
		8						
		10						
		12						
	50 kgN	6	3 000	750	77	54	39	45.2

1.2 Diamond crossing

(with rigid obtuse crossing)

Gauge	Rail type	Number	l	a	b	c	d	e
1 067	40 kgN	4	1 800	450	80	57	42	44.2
		5						
		6						
	50 kgN	4	1 700	600	80	57	42	45.2
		5						
1 435	40 kgN	8	1 800	450	77	54	39	44.2

1.3 Diamond crossing

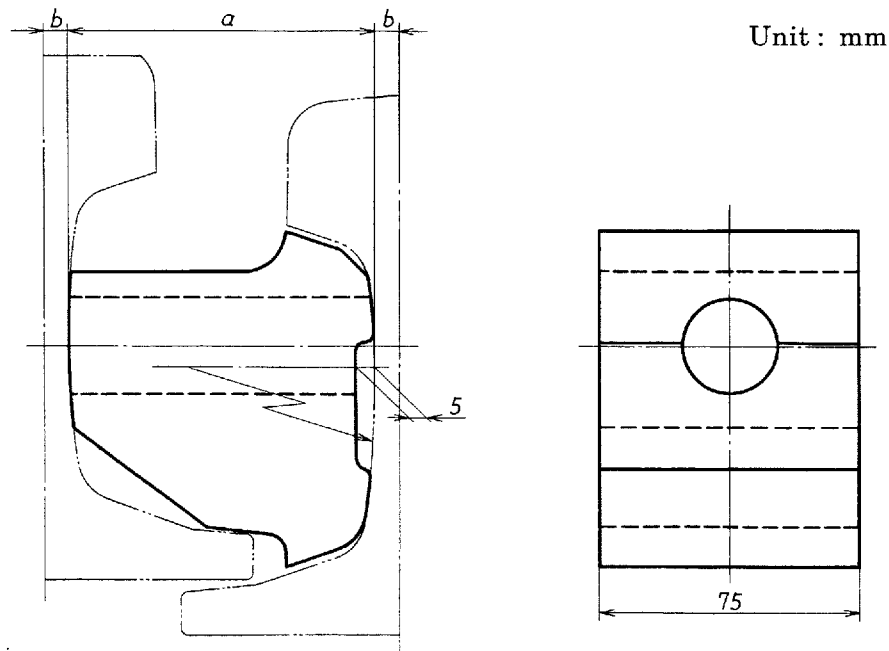
(with articulated movable obtuse crossing)

Gauge	Rail type	Number	l	a	b	c	d
1 067	40 kgN	8	2 700	750	80	57	42
		9					
		10					
		12					

- Remarks
- 1 This drawing shows a guard for the case No. 16 simple turnout.
 - 2 The dimension f shall be 500 mm to 700 mm.
 - 3 For the filler fitting holes, there are 3 holes shall be employed on account of the sleeper fitted does not obstruct the bolt of code ⑩.

Code	Name	Attached Figure No.	
		40 kgN	50 kgN
1	Guard rail	—	
2	Filler	1.1	
3	Washer	1.2	
4	Washer	1.3	1.4
5	Washer	1.5	
6	Washer	1.6	
7	Washer	—	
8	Base plate	1.7	
9	Bolt	—	
10	Bolt	—	

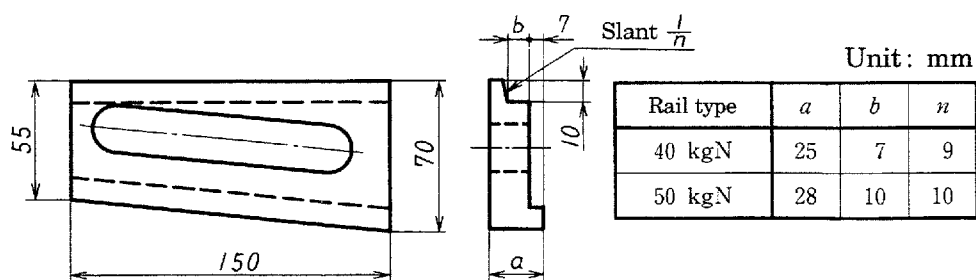
Attached Fig. 1 Guard (for simple turnout)



Rail type	<i>b</i>
40 kgN	7
50 kgN	7.5

Remarks : To determine the dimension *a* by the position of application.

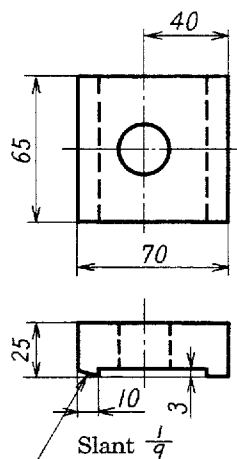
Attached Fig. 1.1 Filler



Rail type	<i>a</i>	<i>b</i>	<i>n</i>
40 kgN	25	7	9
50 kgN	28	10	10

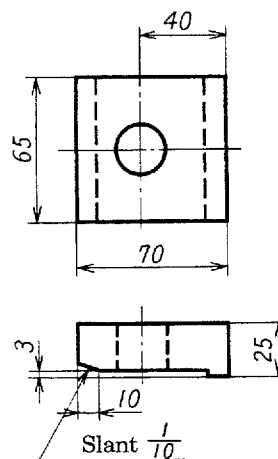
Attached Fig. 1.2 Washer

Unit : mm



Attached Fig. 1.3 Washer (for 40 kgN rail)

Unit : mm



Attached Fig. 1.4 Washer (for 50 kgN rail)

