

2nd edition:
Version:

December 2021
Original

Track components for 25 tons (250 kN) axle loads on ballasted track



© International Union of Railways, 2021. All rights reserved.
This document may not be reproduced – even in part – without the written authorisation of UIC.

IRS to be classified in volumes of UIC:

VII - Way & Works

Subsection 70 - Track & Structure

Complete reference in case of citation:

IRS-70724:2021, Ed2: Track components for 25 tons (250 kN) axle on ballasted track

Approbation date:

4 October 2021

With effect from:

1 January 2022

Application recommended to:

1 January 2022

Keywords:

Track Equipment; 25 tons axle load; 250 kN axle load; ballasted track

Warning

No part of this publication may be copied, reproduced or distributed by any means whatsoever, including electronic, except for private and individual use, without the express permission of the International Union of Railways (UIC). The same applies for translation, adaptation or transformation, arrangement or reproduction by any method or procedure whatsoever. The sole exceptions - noting the author's name and the source - are "analyses and brief quotations justified by the critical, argumentative, educational, scientific or informative nature of the publication into which they are incorporated".

(Articles L 122-4 and L122-5 of the French Intellectual Property Code).

© International Union of Railways (UIC) - Paris, 2021

Published by the International Union of Railways (UIC)

16 rue Jean Rey, 75015 Paris - France, December 2021

Dépôt Légal December 2021

ISBN 978-2-7461-3153-8



Record of updates:

1st edition, October 2021

UIC Leaflet 724 is being replaced by IRS 70724

2nd edition, December 2021

Some corrections to the previous version.
Reason: 1. Comments received from RSF

CONTENTS

Foreword	1
Executive summary	3
Field of application	4
Reference documents	5
Abbreviations and Symbols	7

General Application

1 – Introduction	9
1.1 – Context.....	9
1.2 – Objectives	9
1.3 – Prior knowledge	10
2 – Maximum permissible forces	11
2.1 – Maximum vertical forces	11
2.2 – Force levels and running conditions acceptable on a given line	11
3 – Track components for new tracks or renewed tracks dedicated to 25 t axle loads	12
3.1 – Sub-grade	12
3.2 – Ballast	12
3.3 – Sleepers and sleeper spacing.....	13
3.4 – Rail-fastening systems	13
3.5 – Rails	14
3.6 – Switches and crossings.....	14
Regulatory listing	15
Bibliography	16

Foreword

An International Railway Solution (IRS) is a document drawn up by consensus and applied on a voluntary basis which aims to facilitate and harmonise railway operation.

IRSs are gradually replacing UIC leaflets.

Members of the International Union of Railways (UIC) participate in the creation of IRSs, of which they benefit in full. Furthermore, marketing to railway stakeholders contributes to the sharing and harmonisation of good practices, in accordance with UIC's primary goal.

While IRSs do not have the force of law, they are created and published in a professional manner and with technical approval on the basis of UIC procedures, and have full technical legitimacy in the railway sector.

The "General application" section constitutes the heart of the IRS and contains the working group's expertise applicable in the broadest manner. The addition of a "Specific application" aims to cover factors specific to a region, a type of service, etc.

Some provisions shall be implemented in all cases to ensure correct application and maintain the system's cohesiveness. Certain operational circumstances require that specific provisions be systematically applied by all users of the document.

For the purposes of understanding, the user acknowledges that the expression of:

- obligation indicates requirements to be respected in order to comply with the expertise expressed in the document (usually "shall");
- recommendation indicates options that are favourable but not essential (usually "should");
- permission indicates options that are recognised but without consequence (usually "may");
- capacity indicates possibilities from a technical standpoint and not permissions or probabilities (usually "can").

Obligation, recommendation and capacity can be expressed in the negative to indicate prohibiting, non-recommendation and incapacity.

If applicable, notably for the purposes of compliance with a UIC approval, passages that are recommended or mandatory for the cohesiveness of the system will be accompanied by the letters "R" and "MCS" respectively.

This IRS reflects the following UIC working group expertise:

Rail System Forum - Infrastructure sector

It integrates in full or in part the following UIC leaflets:

- *UIC Leaflet 724*

It complements the following standards:

- none

The following IRSs constitute a complementary series:

- none

Executive summary

The International Union of Railways (UIC) develops and distributes International Railway Solutions (IRSs) in order to help railway stakeholders, achieve further harmonisation collaboration.

The content of this IRS is the revision of *UIC Leaflet 724*, with actualised references to UIC IRS and European Norms.

It integrates in full or in part the following UIC leaflets:

- *UIC Leaflet 724*

It aims to complement the following standards:

- none