

High Visibility Clothing

Synopsis

This document sets out the minimum specification for high visibility clothing

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Content approved by:

Traffic Operation and Management Standards Committee on 29
April 2008

Authorised by RSSB on 17 June 2008

Published by:

**Rail Safety and Standards Board
Evergreen House
160 Euston Road
London NW1 2DX**

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High Visibility Clothing

Issue record

Issue	Date	Comments
One	December 1994	Original document (emergency standard)
Two	April 1995	Superseded issue one
Three	October 1995	Superseded issue two, giving limits to the background colour and altering permitted marked designations
Four	August 1996	Amended in respect of hot work and implementation statement reinstated
Five	December 1999	Amended in respect of markings required for Railway Incident Officer on high visibility clothing
Six	August 2008	Amended following filtering under Strategy for Standards Management – decision to retain and revise presentation

Revisions have not been marked by a vertical black line in this issue because the document has been revised throughout.

Superseded documents

The following Railway Group documents are superseded, either in whole or in part as indicated:

Superseded documents	Sections superseded	Date when sections are superseded
GO/RT3279 Issue Five	All	04 October 2008

Supply

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Part 1 Purpose and Introduction

1.1 Purpose

- 1.1.1 This document mandates minimum requirements for high visibility clothing to ensure people are conspicuous when on the lineside or on or near the line. It applies to all high visibility clothing worn in order to meet the requirements of GE/RT8000 Rule Book.

1.2 Introduction

1.2.1 Background

- 1.2.1.1 The wearing of high visibility clothing is an essential item of personal protective equipment, providing drivers of rail movements with a conspicuous warning of the presence of people within view on the lineside or on or near the line. Similar benefits accrue to those managing the safety of workgroups, by improving visibility of people when needing to account for them having moved to a place of safety.
- 1.2.1.2 In limited circumstances role titles for staff engaged in incident management or rendering first aid may be added to high visibility clothing to assist in identifying staff with critical responsibilities.

1.2.2 Principles

- 1.2.2.1 The requirements of this document are based on the following principles:
- High visibility clothing worn by people on the lineside or on or near the line should conform to a single standard for the colour and luminance of background material.
 - High visibility clothing worn by people on the lineside or on or near the line should conform to a single standard for the photometric and physical performance of retro reflective material to aid conspicuousness in darkness or poor visibility.
 - Limits should be established regarding additional markings or words that identify the employing company or particular roles eg Rail Incident Officer, to maximise the impact of a restricted number of titles, assist in recognition of incident management roles to members of the emergency services and avoid information overload.
 - There are limited circumstances where working conditions preclude the use of normal high visibility clothing eg hot work, where heat resisting overalls are necessary and other control measures are in place to manage the risk of lack of conspicuousness in relation to train movements.
 - There are circumstances where material to cover a large surface area is not considered necessary, where use of a high visibility mini-vest is permitted.

1.2.3 Related requirements in other documents

- 1.2.3.1 The following Railway Group Standard contains requirements that are relevant to the scope of this document: GE/RT8000 Rule Book.

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Part 2 Requirements for high visibility clothing

2.1 Requirements applicable to infrastructure managers and railway undertakings

2.1.1 Specification

- 2.1.1.1 The minimum requirements for high visibility clothing worn as part of personal protective equipment shall comply with BS EN471: 2003, conforming to the class 2 specification in respect of the minimum area of visible materials. The background material and retro reflective material shall be as described in Appendix A of this standard, reproduced from BS EN471: 2003.
- 2.1.1.2 The class 2 specification may be varied where duties require the use of high visibility clothing, but the nature of the work does not involve possible obscuring of the high visibility clothing. In these circumstances a high visibility mini-vest conforming to the modified class 1 size specification may be worn, as defined in Appendix B of this standard.
- 2.1.1.3 The configuration of the retro reflective markings shall consist of 'belt and braces' type as specified in BS EN471: 2003, clause 4.2.3 section (c). Details of permitted logos and wording are defined in Appendix A.
- 2.1.1.4 The requirements of Appendix A may be varied for those people engaged in hot work processes on or near the line or on the lineside, as long as they are provided with a coverall garment which:
- a) Is made of orange fabric eg 'Securitec', with retro reflective taping
 - b) Has been designed to meet the requirements of BS EN 470-1:1995.

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Part 3 Application of this document

3.1 Application - infrastructure managers

3.1.1 Scope

3.1.1.1 The requirements of this document apply to all new and existing high visibility clothing worn on the lineside or on or near the line.

3.1.2 Exclusions from scope

3.1.2.1 There are no exclusions from the scope specified in clause 3.1.1 for infrastructure managers.

3.1.3 General compliance date for infrastructure managers

3.1.3.1 This Railway Group Standard comes into force and is to be complied with from 04 October 2008. There are no changes to technical specifications.

3.1.4 Exceptions to general compliance date

3.1.4.1 There are no exceptions to the general compliance date specified in clause 3.1.3 for infrastructure managers.

3.2 Application - railway undertakings

3.2.1 Scope

3.2.1.1 The requirements of this document apply to all new and existing high visibility clothing worn on the lineside or on or near the line.

3.2.2 Exclusions from scope

3.2.2.1 There are no exclusions from the scope specified in clause 3.2.3 for railway undertakings.

3.2.3 General compliance date for railway undertakings

3.2.3.1 This Railway Group Standard comes into force and is to be complied with from 04 October 2008. There are no changes to technical specifications.

3.2.4 Exceptions to general compliance date

3.2.4.1 There are no exceptions to the general compliance date specified in clause 3.2.3 for railway undertakings.

3.3 Health and safety responsibilities

3.3.1 Users of documents published by RSSB are reminded of the need to consider their own responsibilities to ensure health and safety at work and their own duties under health and safety legislation. RSSB does not warrant that compliance with all or any documents published by RSSB is sufficient in itself to ensure safe systems of work or operation or to satisfy such responsibilities or duties.

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Appendix A General design requirements for high visibility clothing

The content of this appendix is mandatory.

A.1 Background material

- A.1.1. The target colour of new background material shall be fluorescent orange with chromaticity and luminance defined as follows:

Colour	Chromaticity co-ordinates		Minimum luminance factor β_{min}
	x	y	
Fluorescent orange	0.588	0.371	0.4

- A.1.2 The tolerance of the fluorescent orange target colour shall be within the following limits with the luminance factor of 0.4 remaining unchanged:

Chromaticity co-ordinates		
	x	y
	0.610	0.390
	0.640	0.360
	0.585	0.355
	0.560	0.380

- A.1.3 The change in chromaticity after light exposure and colourfastness shall conform to the requirements of BS EN 471: 2003.

A.2 Retro-reflective material

- A.2.1 The photometric and physical performance requirements for the retro reflective material shall conform to the requirements stipulated in BS EN 471:2003, class 2 (table 5).

A.3 Marking

- A.3.1 Except in the case of the high visibility clothing worn by a Rail Incident Officer or First Aider, the background material shall not be obscured by the addition of any other features, unless provision has been allowed for in the specification such that the minimum areas of background and retro reflective material have been preserved.

- A.3.2 The only permitted features are the name and logo of the employing company, and titles or designations associated with the management of incidents, as listed:

- a) Rail Incident Officer (RIO)
- b) Press Officer
- c) Recovery Engineer
- d) First Aider
- e) Train Operators' Liaison Officer (TOLO)

- A.3.3 In the case of the high visibility clothing worn by a Rail Incident Officer the visible background material area of the class 2 jacket shall accommodate the special markings illustrated in Figure A1 (page 8).

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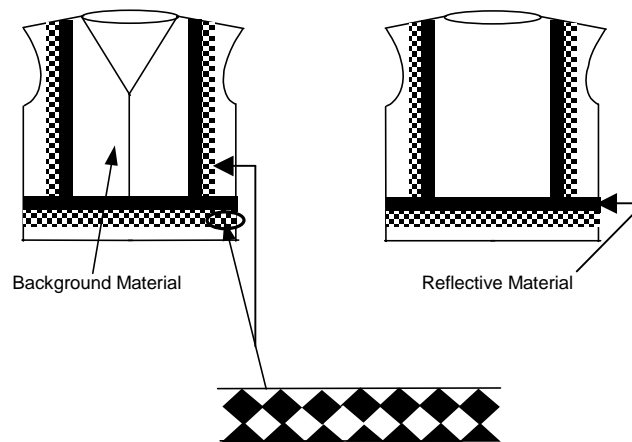


Figure A1

- A.3.3 The special markings shall consist of 50mm wide Reflexite fluorescent lime high brightness garment tape, eg Reflexite GP220 Plain, either sewn or high frequency (HF) welded to the garment with 'orange peel' clear laminate HF welded to top surface. The 'orange peel' laminate shall be overprinted, in black opaque ink, with a design of diamond pattern across the surface consisting of one full diamond and one half diamond as detailed in figure A1.
- A.3.4 A similar pattern of special markings to those illustrated for a RIO in Figure A1, consisting of green and white chequered tape, is permitted for high visibility vests marked 'First Aider'.

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Appendix B Design of high visibility mini-vests

The content of this appendix is mandatory.

B.1 General

- B.1.1 The design of the high visibility mini-vests (HVMV) shall conform to the class 1 requirements of BS EN 471: 2003, but shall exceed those requirements in respect of areas of background material and retro reflective material. The detailed requirements are listed below.

B.2 Style

- B.2.1 The HVMV shall consist of background material and retro reflective material, ie combined performance material shall not be used. Figure B1 shows an example of the general arrangement of the HVMV illustrating the disposition of background and retro reflective material.

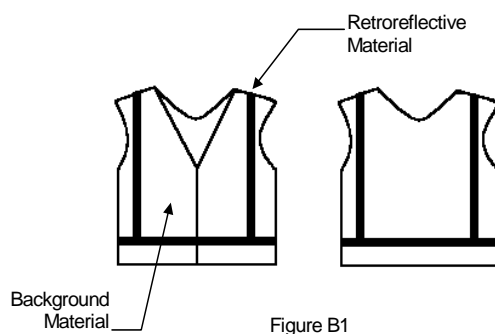


Figure B1

B.3 Construction

- B.3.1 High visibility mini-vests shall conform to the following minimum areas of visible material:

Background material	0.26 m ²
Retro reflective material	0.12 m ²

- B.3.2 The background material shall encircle the torso and any markings shall be in accordance with limitations stated in Appendix A.3.1 of this standard.
- B.3.3 Bands of retro reflective material shall be not less than 50 mm wide.
- B.3.4 High visibility mini-vests shall have one horizontal band of retro reflective material around the torso. The bottom of the band shall not be less than 50 mm above the bottom edge of the mini-vests. High visibility mini-vests shall have bands of retro reflective material joining the horizontal torso band from the front to the back over each shoulder.

B.4 Background material

- B.4.1 The material shall conform to the requirements of Appendix A.1 of this Standard.

B.5 Retro reflective material

- B.5.1 The material shall conform to the requirements of Appendix A.2 of this Standard.

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B.6 Fasteners

- B.6.1 The HVMV shall quickly part at the shoulders and sides by means of touch and close or press-stud fastenings or other suitable methods if caught by an external object.

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Definitions

Background material

Coloured fluorescent material intended to be highly conspicuous, but not intended to comply with the requirements of this standard for retro reflective material.

Combined performance material

Material intended to exhibit both background and retro reflective properties.

Fluorescent material

Material that emits optical radiation at wavelengths longer than absorbed.

High visibility clothing

Warning clothing intended to provide conspicuousness at all times.

Lineside

Is defined as the area between the boundary fence and the point that is called 'on or near the line', and where someone would be within view of the driver of an approaching train or movement. A person is not on the lineside if they are on a station platform.

On or near the line

Within 3 metres of the nearest rail of any line, and on the line itself. On a platform, the term 'on or near the line' applies only to the part of the platform within 1.25 metres of the platform edge and only when an engineering or technical activity is taking place.

Retro reflective material

Material which is a retroreflector, but which is not intended to comply with the requirements of this standard for background material.

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References

The Catalogue of Railway Group Standards and the Railway Group Standards CD-ROM give the current issue number and status of documents published by RSSB. This information is also available from www.rgsonline.co.uk.

Documents referenced in the text

RGSC 01 The Railway Group Standards Code

Railway Group Standards

GE/RT8000 Rule Book

Other References

BS EN 470-1: 1995 Protective Clothing for use in Welding and Allied Processes: Part 1.
General Requirements

BS EN 471: 2003 Specification for – High Visibility Clothing