STYLE REF: RF4500

STYLE NAME: TITANIUM

Rock Fall®

INNOVATION IN SAFETY FOOTWEAR

SPECIFICATION: EN ISO 20345:2011 S3 HI CI WR HRO SRC | SIZE UK 3-14 (WHOLE SIZES) | COLOUR: BLACK

ONE OF EUROPES LIGHTEST HIGH SPECIFICATION SAFETY BOOTS, 100% NON-METALLIC, WATERPROOF AND BREATHABLE MEMBRANE, R-TEN THREAD, FORCE10 ADVANCED DURABILITY COMPONENTS, 8" YKK SIDE ZIP

RF4500



CLICK A FEATURE OR COMPONENT TO LEARN MORE

100% Non Metallic | Anti Static | Cold Insulation | Heat Resistant to 300°C | HI Resistant to 150°C | Large Sizes Available | Oil Resistant | Protective Midsole | Protective Toecap | Small Sizes Available | Water Repellent Upper | Waterproof Membrane | Zip Fastening | SRC Highest Level Slip Resistance

FORCE10 ADVANCED SCUFF CAP TECHNOLOGY | FORCE10 GR100 NITRILE RUBBER OUTSOLE | IMPACT SHIELD | YKK Little Parts. Big Difference. | ABRASION RESISTANT THREAD | ACTIV-TEX | Cambrelle

Upper Materials
Premium Full Grain Waxy Leather

Lining Materials
Activ-Tex Waterproof Membrane and Cambrelle Comfort Lining

Outsole
FORCE10® GR100 Solid Nitrile Rubber

Footbed
EVA Footbed

Internal Toecap
Fibreglass

Internal Midsole
Composite

SUBJECT TO CHANGE WITHOUT PRIOR NOTICE: 01/03/2016

EC DECLARATION OF CONFORMITY

Rock Fall®
Head Office & Distribution Centre
Rock Fall UK Limited
Unit 1 Major House
Wimsey Way
Alfreton, Derbyshire
England. DE55 4LS
E: sales@rockfall.co.uk
T: 01773 608616
www.rockfall.co.uk

The manufacturer or his nominated representative established in the community;

ROCK FALL UK LTD
MAJOR HOUSE, UNIT 1
WIMSEY WAY
ALFRETON
DERBYSHIRE, DE55 4LS
UNITED KINGDOM

Declares that the PPE described hereafter;

ROCK FALL TITANIUM RF4500

Is in conformity with the provisions of Council Directive 89/686/EEC and, where such is the case, with the national standard transposing harmonised standard no. EN ISO 20345:2011 (for the PPE referred to in Article 8(2))

This declaration of conformity is issued under the sole responsibility of the manufacturer;

ROCK FALL UK LTD
MAJOR HOUSE, UNIT 1
WIMSEY WAY
ALFRETON
DERBYSHIRE, DE55 4LS
UNITED KINGDOM

Is identical to the PPE which is subject of EC certificate No **LECFI00361517** Issued by:-

ITS TESTING SERVICES (UK) LTD
CENTRE COURT
MERIDIAN BUSINESS PARK
LEICESTER
LE19 1WD

Is subject to the procedure set out in Article 11 point A or point B of the Directive 89/686/EEC under the supervision of the notified body:

ITS TESTING SERVICES (UK) LTD
CENTRE COURT
MERIDIAN BUSINESS PARK
LEICESTER
LE19 1WD

Signature: Position: Director Date: 01/01/2017

EC Type Examination Certificate

Approved Body 0362

The safety footwear detailed herein meets the criteria of an EC Type Examination in accordance with Article 10 of the PPE Directive (89/686/EEC) including amendments and corrigendum up to 14/12/2010 for intermediate design category products.

This has been shown through satisfactory testing to EN ISO 20345: 2011 and examination of the Technical File Documentation.

Following an EC Declaration of Product Conformity you are hereby licensed to mark the product(s) detailed in accordance with Article 13 of the PPE Directive (89/686/EEC).

ITS Testing Services (UK) Ltd.
Centre Court
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Phone: +44 (0)116 263 0330
Fax: +44 (0)116 263 0311

Issued to : Rock Fall UK Ltd
Wimsey Way, Alfreton Trading Estate, Derbyshire, UK
DE55 4LS

Manufacturer

Date of Issue : 28 January 2016

Expiry Date : 28 January 2021

Certificate No. : LEC FI00361517

Product Reference(s) : ROCK FALL TITANIUM RF4500

Description

Construction	:	Cemented
Toecap	:	PEP# Composite
Midsole	:	PEP# Composite
Last	:	#PEP-PL
Sole	:	2147# RB
Test Report(s)	:	See Technical File
Size Range	:	UK 3 – 13
Category	:	S3 WR CI HRO SRC

M. Curtis
Assessor — 28/01/2016 Date

P. Williams
Certification Manager — 28/01/2016 Date

For and on behalf of **ITS Testing Services (UK) Limited**

www.intertek.com

Registered in England No. 1408264 Registered Office: Academy Place, 1-9 Brook Street, Brentwood, Essex. CM14 5NQ

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Test Report

Number: LECFI00 346398 DATE: 04/02/2015

Applicant: Rockfall UK Limited
Major House
Wimsey Way
Alferton Trading Estate
Derbyshire
DE55 4LS

For the attention of Richard Noon

Sample Received: 18/12/2014

Your Reference: RKN

Specification: British Standards

Components:

Sample Description: TPU Scuff Cap Material

Notes: Ref: FORCE 10 Cement
Colour: Black
Supplier: Rockfall
End Use: Safety Boot Scuff Cap

Tests Conducted	Method	Sample	Pass/Fail
*Abrasion Resistance	Based on EN 388		See results

RESULTS: See attachment

COMMENT: Where the results of a test fall close to the requirement, compliance with the specification may be affected by the uncertainty of measurement of the test.
In those circumstances, the client is advised to contact the laboratory for further information

Unmarked tests included in this report are on our UKAS Scope 0947.
Tests marked (^) in this Report are included on Intertek Labtest Leigh UKAS Scope 1516.
Tests marked (^^) in this Report are included in the UKAS Scope of the sub-contractor who performed the test.
Tests marked (*) in this Report are not included in our UKAS Scope.
Tests marked (**) in this Report are not included in the UKAS Scope for the sub-contractor who performed the test.
Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.

Note: A sub-contractor whose certification comes under the ILAC agreement would also be marked in the same manner as a UKAS sub-contractor.

BEN PEARCE
TEXTILE & PPE TEST CAPABILITY LEADER

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Intertek

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0991 *ABRASION RESISTANCE
Based on BS EN 388: 2003 Clause 6.1

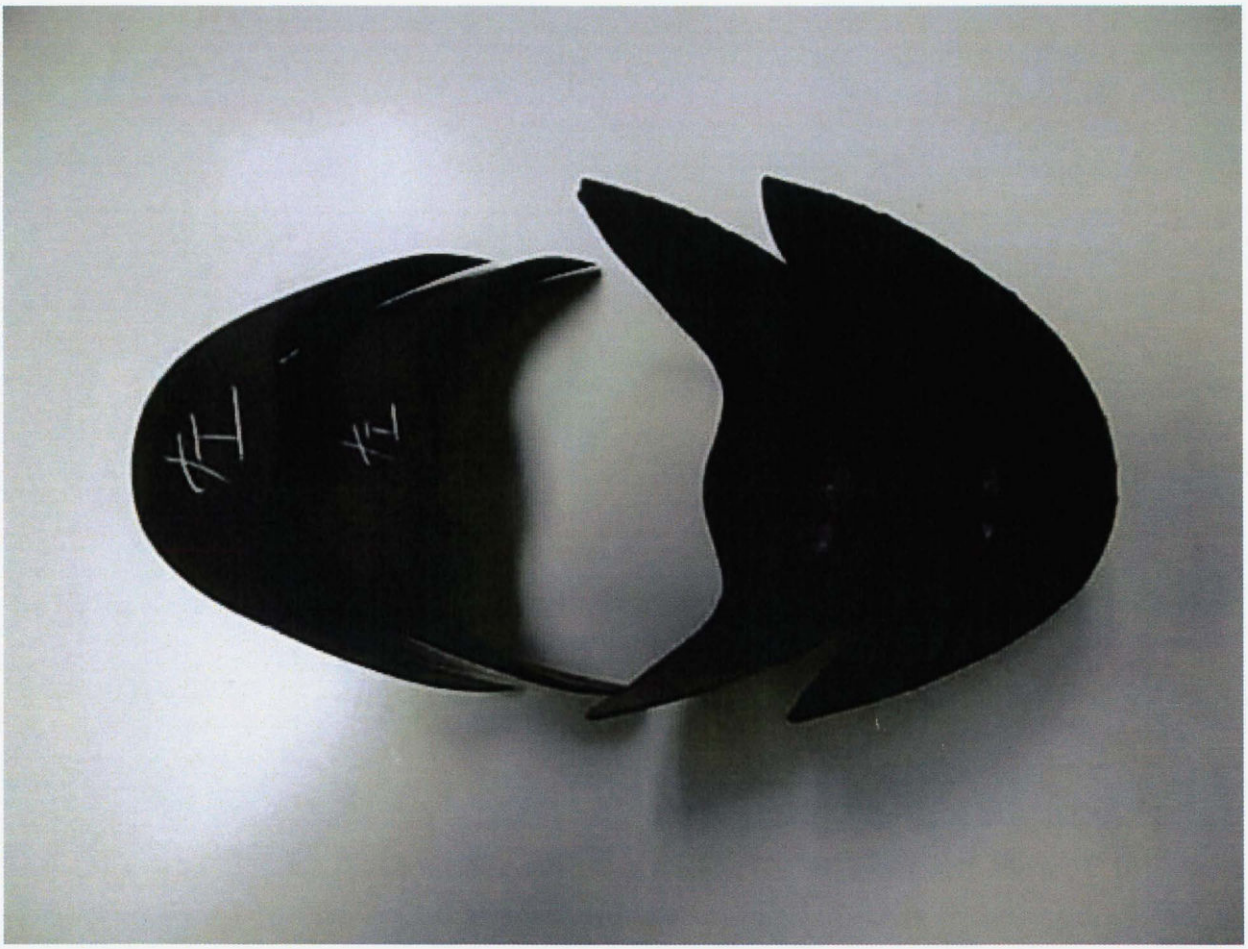
SAMPLE	RESULTS					REQUIREMENT
TPU Footwear scuff cap - Black	Load: 9kPa					No req
	Number of Revs	Head 1	Head 2	Head 3	Head 4	
	2000	No breakdown	No breakdown	No breakdown	No breakdown	
	4000	No breakdown	No breakdown	No breakdown	No breakdown	
	6000	No breakdown	No breakdown	No breakdown	No breakdown	
	8000	No breakdown	No breakdown	No breakdown	No breakdown	
	10000	No breakdown	No breakdown	No breakdown	No breakdown	
	12000	No breakdown	No breakdown	No breakdown	No breakdown	
	14000	No breakdown	No breakdown	No breakdown	No breakdown	
	16000	No breakdown	No breakdown	No breakdown	No breakdown	
	18000	No breakdown	No breakdown	No breakdown	No breakdown	
	20000	No breakdown	No breakdown	No breakdown	No breakdown	
	22000	No breakdown	No breakdown	No breakdown	No breakdown	
	24000	No breakdown	No breakdown	No breakdown	No breakdown	
	26000	No breakdown	No breakdown	No breakdown	No breakdown	
	28000	No breakdown	No breakdown	No breakdown	No breakdown	
	30000	No breakdown	No breakdown	No breakdown	No breakdown	
	32000	No breakdown	No breakdown	No breakdown	No breakdown	
	34000	No breakdown	No breakdown	No breakdown	No breakdown	
	36000	Breakdown	No breakdown	No breakdown	No breakdown	
	38000	--	No breakdown	No breakdown	No breakdown	
	40000	--	No breakdown	No breakdown	No breakdown	
	42000	--	No breakdown	No breakdown	No breakdown	
	44000	--	No breakdown	No breakdown	No breakdown	
	46000	--	No breakdown	No breakdown	No breakdown	
	Comment: Tested Using P180 Grit Paper The test was continued for a further 10000 revs. The test was stopped after this point as the samples became too thin to produce good contact with the abradant.					

Average Score of 43,000 Revs

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End of Report

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Test Report Number: GZHT90499545

Tests Conducted (As Requested By The Applicant)

1 Slip Resistance (EN ISO 20344:2011(5.11) & ISO 13287:2012, SRC, Temperature: 23℃)

				Requirement	Pass/Fail
Size 42	Right	On Eurotile 2 With NaLS			
		Forward Heel Slip (#1):	0.45	Min. 0.28	Pass
		Forward Flat Slip (#2):	0.43	Min. 0.32	Pass
		On Steel Floor With Glycerine			
		Forward Heel Slip (#1):	0.14	Min. 0.13	Pass
		Forward Flat Slip (#2):	0.19	Min. 0.18	Pass

Note:
It Must Be Noted That The Slip Resistance Test Carried Out In This Report Denotes An Indication Of Slip Of This Particular Footwear/Component On The Surface Mentioned In The Test Item. It Is Important To Note That Footwear Is Subject To Many Different Conditions Encountered In Everyday Use And That It Is Impossible To Make Footwear Resistant To Slip In All Conditions. Nevertheless, It Is Generally Accepted That Problems Are Minimized If The Guideline Coefficients Of Friction Are Achieved.

Remark:
#1 = Using Standard Shoemaking Last
#2 = Using Mechanical Foot

Expanded Uncertainty: 0.01, With K = 2.03 At 95% Confidence Level.

2 Abrasion Resistance (Outsole) (EN ISO 20344:2011(8.3), ISO 4649:2010, Method A)

			Requirement	Pass/Fail
	Density	Relative Volume Loss		
Size 42	1.2 g/cm^3	80.5 mm^3	*	Pass

Remark: * = Density: > 0.9 g/cm^3, Max. 150 mm^3

Expanded Uncertainty: 1.76 mm^3, With k= 1.96 At 95% Confidence Level.

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Commercial in Confidence

HEALTH & SAFETY LABORATORY

GRIP Rating of Footwear for Rock Fall UK, 2016

Author:
Graeme Hunwin

Report Number:
EPSU/FAL/16/032

HEALTH & SAFETY LABORATORY

GRIP Rating of Footwear for Rock Fall UK, 2016

EXECUTIVE SUMMARY

The following soling unit was submitted for rating under the Health and Safety Laboratory (HSL) GRIP Rating Scheme by Rock Fall UK.

Soling Unit Identifier	Type of Rating	GRIP Rating Achieved
FORCE 10 sole	Full	

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1 INTRODUCTION

The European Directive 89/686/EEC on Personal Protective Equipment (PPE) recognises the need for slip resistance as a protective property of footwear. Demonstration of compliance with the Directive is usually made through the standards for safety, protective and occupational footwear (BS EN ISO 20345:2011, BS EN ISO 20346:2014 and BS EN ISO 20347:2012). However, these standards only provide a minimum level of compliance with the Directive.

The Health & Safety Laboratory (HSL) has developed a rating scheme for the slip resistance of footwear, known as GRIP (HSL, 2014). The GRIP scheme aims to disseminate slip resistance information on footwear, measured according to the HSL Ramp test procedure, through the use of easy to understand ratings. It is intended that the GRIP ratings will allow businesses to identify suitable slip resistant footwear as a control measure to reduce their risk of slipping accidents.

This report presents the results of GRIP testing for full rating of the FORCE 10 soling unit, at the request of Rock Fall UK. Testing was co-ordinated by Mr Graeme Hunwin, Falls Prevention Team, Health & Safety Laboratory, during June 2016.

2 METHODOLOGY

Three sample pairs of Tomcat TC3000A Rhyolite safety boots supplied by Rock Fall UK were tested. The soling unit assessed is listed below in Table 1.

Table 1 Soling units supplied for testing

HSL ID	Soling Unit Identifier
FAL/16/024	FORCE 10 sole
FAL/16/072	FORCE 10 sole
FAL/16/073	FORCE 10 sole

Testing was undertaken in accordance with section 6.2 of the GRIP Handbook (HSL, 2014), which is reproduced below:

a. Footwear will be tested using the HSL ramp test
b. The ramp (Figure 1) consists of an adjustable platform (1), upon which the test flooring material is positioned. A fall arrest device (2) is attached to an overhead frame (3) to prevent injury to the operator during a test.



Figure 1 The ramp test

c. Test operators will be trained and verification will be undertaken prior to testing.

d. The flooring material used for tests shall have the following properties:

Floor Type	Ceramic tile
Pendulum Test Value (UKSRG, 2011)	10 – 12
Rz Surface Microroughness	5.0 – 7.0µm

e. The test requires the operator to carry out a series of controlled walks over the floor surface.
f. Footwear will be prepared by lightly abrading with P400 grit silicon carbide abrasive paper, using an orbital sander, before each operator begins their set of walks.
g. The walking method involves the operator taking a series of half steps forward then backward, returning to their start position.
h. The walking speed is controlled at 144 steps per minute using a metronome.
i. If the operator completes the walk without a slip they increase the angle of inclination of the platform by approximately 1° and repeat the walks.
j. The process is repeated until an inclination is reached where a slip occurs; this is defined as the slip angle.
k. The slip angle is recorded by an observer, from a display that is hidden from the operator such that knowledge of the slip angle does not influence their walk.
l. The platform is returned to an angle of inclination a few degrees below the slip angle and the process is repeated until the operator generates ten slip angles.
m. The first two slip angles are discarded, and a mean slip angle is calculated from the remaining eight values, giving the operator result.
n. A second operator repeats this process, generating a further 10 slip angles, and a second operator result is calculated.
o. The range of the eight slip angles used to calculate the operator result must be no greater than 2.4° for glycerol tests and 3.6° for water tests, otherwise a third operator will generate a third operator result.
p. The difference between two operator results must be no greater than 1.8° for glycerol and 2.5° for water, otherwise a third operator will generate a third operator result.
q. Where the third operator result fails to meet the acceptance criteria set out in (o) or (p) a fourth operator will generate a fourth operator result.
r. The test result is the mean of all the operator results obtained.
s. The test result will be converted into the coefficient of friction by taking the tangent of the test result.

The test result obtained for footwear supplied for re-rating must fall within the expected range of the three pairs previously tested.

The footwear is rated in accordance with the requirements in Table 2.

Table 2 The test conditions and GRIP rating requirements

Test Condition 1	Test Condition 2	Measured CoF		GRIP Rating
		Test Condition 1	Test Condition 2	
Water	-	≥0.19	-	1 Star
Water	-	≥0.27	-	2 Star
Water	-	≥0.36	-	3 Star
Water	Glycerol (75% solution)	≥0.36	≥0.19	4 Star
Water	Glycerol (75% solution)	≥0.36	≥0.27	5 Star

3 RESULTS

The test results for the footwear supplied for GRIP rating are presented below.

Footwear: Tomcat TC3000A Rhyolite safety boot

Soling Unit identifier: FORCE 10 sole



Figure 2 The FORCE 10 soling unit

Contaminant: Water

Sample ID	Operator 1 (°)	Operator 2 (°)	Test Result (°)	CoF
FAL/16/024	15.6	15.6	15.6	0.28
FAL/16/072	14.7	13.8	14.3	0.25
FAL/16/073	17.7	17.9	17.8	0.32
		Mean	15.9	0.28

Contaminant: 75% Glycerol solution

Sample ID	Operator 1 (°)	Operator 2 (°)	Test Result (°)	CoF
FAL/16/024	4.1	3.4	3.7	0.07
FAL/16/072	5.2	4.0	4.6	0.08
FAL/16/073	6.7	4.9	5.8	0.10
		Mean	4.7	0.08

Rating:

4 REFERENCES

British Standards Institution, (2011), BS EN ISO 20345: 2011, Personal protective equipment. Safety footwear, British Standards Institution, London.

British Standards Institution, (2014), BS EN ISO 20346: 2014, Personal protective equipment. Protective footwear, British Standards Institution, London.

British Standards Institution, (2012), BS EN ISO 20347: 2012, Personal protective equipment. Occupational footwear, British Standards Institution, London.

Council Directive 89/686/EEC of 21st December 1989 on the approximation of the laws of the Member States relating to personal protective equipment, 1989, OJ No. L 399/18.

Health and Safety Laboratory, (2014), The GRIP Scheme, Footwear Slip Resistance Ratings, Handbook for Participants, http://www.hsl.gov.uk/media/435727/the%20grip%20scheme%20handbook%20v1.1.pdf. Health and Safety Laboratory, last accessed: 10/3/2016.

UKSRG, (2011), The Assessment of Floor Surface Slipperiness: The UK Slip Resistance Group Guidelines Issue 4, 2011, The United Kingdom Slip Resistance Group (UKSRG).

HEALTH & SAFETY LABORATORY

HSL: HSE's Health and Safety Laboratory is one of the world's leading providers of health and safety solutions to industry, government and professional bodies.

The main focus of our work is on understanding and reducing health and safety risks. We provide health and safety expert advice and consultancy, research, specialist training and products.

At HSL, we have been developing health and safety solutions for over 100 years. Our long history means that we're well placed to understand the changing health and safety landscape, and anticipate future issues.

We employ over 450 scientific, medical and technical specialists, including occupational health and risk management experts to help our clients manage a wide range of issues in workplace health and safety.

ISO 9001 ISO 14001 OHSAS 18001

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