Singapore Standards Council

SS 588 : Part 1 : 2013
(ICS 13.340.60)

SINGAPORE STANDARD

Personal equipment for protection against falls – Rope access systems

– Part 1 : Fundamental principles for a system of work

Published by
Enterprise Singapore

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ISBN 978-981-4557-11-5

This Singapore Standard was approved by the General Engineering and Safety Standards Committee on behalf of the Singapore Standards Council on 25 October 2013.

First published, 2013

The General Engineering and Safety Standards Committee, appointed by the Standards Council, consists of the following members:

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The Technical Committee on Personal Safety and Health, appointed by the General Engineering and Safety Standards Committee and responsible for the preparation of this standard, consists of representatives from the following organisations:

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The Working Group, appointed by the Technical Committee to assist in the preparation of this standard, comprises the following experts who contribute in their *individual capacity*:

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The organisations in which the experts of the Working Group are involved are:

Association of Singapore Marine Industries
IOSH Singapore Branch
KB Access Private Limited
Ministry of Manpower
Singapore Institution of Safety Officers
Singapore Rope Access Association
The Institution of Engineers, Singapore
TRACTEL Singapore Private Limited
Workplace Safety and Health Council

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National Foreword

This Singapore Standard was prepared by the Technical Committee on Personal Safety and Health under the direction of the General Engineering and Safety Standards Committee.

SS 588 consists of the following two parts, under the general title 'Personal equipment for protection against falls – Rope access systems':

- Part 1 : Fundamental principles for a system of work (modified adoption of ISO 22846-1 : 2003)
- Part 2 : Code of practice (modified adoption of ISO 22846-2 : 2012)

Part 1 of SS 588 is a modified adoption of ISO 22846-1 : 2003 – 'Personal equipment for protection against falls – Rope access systems – Part 1: Fundamental principles for a system of work', published by the International Organization for Standardization. It has been redrafted for ease of use by the readers. Modifications have been made to meet the particular needs of the rope access industry. And these technical deviations have been incorporated and are marked by a single bar in the margin.

The modifications are as follows:

Clause	**Modifications**
Introduction	*Added* "(read with 5.3 of SS 588 : Part 2 : 2013)". Explanation: To inform users of the training and assessment requirements found in Part 2 of SS 588.
3.1	*Added* "and rescue resources". Explanation: For clarity.
3.3	*Added* "(refer to 4.4 of SS 588 : Part 2 : 2013)". Explanation: To inform users of the hazard identification and risk assessment requirements found in Part 2 of SS 588.
3.4, NOTE	*Replaced* "back-up security" with "independent back-up security". Explanation: To reiterate that the back-up security system is independent of the working line.
3.8	*Replaced* "sit harness" with "sit and chest harness". Explanation: A full-body harness provides better support from body to limbs and will minimise the risk of operative falling.
3.16	*Replaced* "should" with "shall". Explanation: To indicate essential requirements.
3.17	
3.18	
3.27	

Attention is drawn to the following:

1. Where the words 'this part of ISO 22846' appear, they should be interpreted as 'this part of SS 588'.

2. The comma has been used throughout as a decimal marker in ISO 22846-1, whereas in Singapore Standards it is a practice to use a full-point on the baseline as the decimal marker.

SS 588 : Part 1 shall be read in conjunction with Part 2. This series is applicable to the use of rope access methods in any situation where ropes are used as the primary means of access, egress or support and as the primary means of protection against a fall, on both man-made and natural features.

At the time of publication, SS 588 : Parts 1 and 2 are expected to be used by those who use rope access methods, by those commissioning rope access work and by rope access associations, professional engineers and consultants.

The following referenced documents are indispensable for the application of this Singapore Standard. The latest editions of the referenced documents (including any amendments) apply:

a. Workplace Safety and Health Act and its subsidiary regulations;

b. Code of practice on WSH Risk Management.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22846-1 was prepared by Technical Committee ISO/TC 94, *Personal safety – Protective clothing and equipment*, Subcommittee SC 4, *Personal equipment for protection against falls*.

ISO 22846 consists of the following parts, under the general title *Personal equipment for protection against falls – Rope access systems*:

- *Part 1: Fundamental principles for a system of work*
- *Part 2: Code of practice*

Introduction

Rope access is a system that provides a user with the means, typically using synthetic fibre kernmantel ropes and associated equipment, to gain access to, be supported at, and then as a means of egress from, a place of work for the purpose of carrying out a work task.

Rope access has its background in mountaineering and particularly in caving, where it has been well proven although it relies on only a single rope. For adaptation to the work environment, the techniques and some of the equipment have been modified. The most significant change is the inclusion of a second rope to provide additional safety. These modifications allow the system to offer a level of protection to the operatives equal to or better than, other similar forms of access.

In a typical system, one rope (the working line) is used for access and egress (usually ascent and descent) and for support at the workplace. A harness is attached to the user and specially designed devices are attached to the working line and to the harness. The other rope (the safety line) is connected to the user via a safety device, which travels along the safety line as the user ascends or descends the working line. In the event of a failure of the working line or any of its components, the safety line protects against a fall and limits the load to the equipment and operative. This is one example of a system. However, the need to provide a basic access system and a back-up system may also be accomplished in other ways. The techniques and equipment used for this purpose may be extended to encompass traversing and aid climbing.

The safe use of rope access systems requires competence (read with 5.3 of SS 588 : Part 2 : 2013), normally acquired by training, and confirmed with independent assessment and certification, not only in the use of the system itself, but also in workmate rescue/retrieval.

While this part of ISO 22846 provides the generalized framework for the specification and the operation of rope access, individual countries, states and localities may have particular requirements. These local requirements should be followed in addition to those of this part of ISO 22846.

Personal equipment for protection against falls – Rope access systems – Part 1 : Fundamental principles for a system of work

1 Scope

This part of ISO 22846 gives the fundamental principles for the use of rope-access methods for work at height. It is intended for use by employers, employees and self-employed persons who use rope-access methods, by those commissioning rope-access work and by rope-access associations. This part of ISO 22846 is applicable to the use of rope-access methods on buildings, other structures (on- or offshore) or natural features (such as cliff faces), during which ropes are suspended from or connected to a structure or natural feature. It is applicable to situations where ropes are used as the primary means of access, egress or support and as the primary means of protection against a fall.

This part of ISO 22846 is not intended to apply to the use of rope-access methods for leisure activities, arboriculture, general steeplejack methods or emergency personal-evacuation systems, or the use of rope-access (line rescue) techniques by the fire brigade and other emergency services for rescue work or for rescue training. Nevertheless, those engaged in other similar activities are likely to benefit from the advice given in this part of ISO 22846, as many of the principles do apply to, and offer good practice for, activities outside this formally defined scope.

NOTE – This is the first of a planned multi-part series of International Standards for rope access.