

SINGAPORE STANDARD

SS 104 : 1996

(ICS 91.080.10;77.080.20)

SPECIFICATION FOR

Cold-formed steel sections for general structures

Published by

SPRING Singapore

2 Bukit Merah Central

Singapore 159835

SPRING Singapore Website: www.spring.gov.sg

Standards Website: www.standards.org.sg



SINGAPORE STANDARD

SS 104 : 1996

(ICS 91.080.10;77.080.20)

SPECIFICATION FOR

Cold-formed steel sections for general structures

All rights reserved. Unless otherwise specified, no part of this Singapore Standard may be reproduced or utilised in any form or by any means, electronic or mechanical, including photocopying and microfilming, without permission in writing from the SPRING Singapore at the address below:

Head
Standardisation Department
SPRING Singapore
2 Bukit Merah Central
Singapore 159835
Telephone: 62786666 Telefax: 62786667
Email: stn@spring.gov.sg

ISBN 9971-67-574-9

CONTENTS

	Page
Foreword - - - - -	4

SPECIFICATION

1. Scope - - - - -	5
2. Description and symbol - - - - -	5
3. Method of manufacture - - - - -	5
4. Chemical composition - - - - -	5
5. Mechanical properties - - - - -	6
6. Appearance, shape, dimensions, mass and tolerances - - - - -	6
7. Tensile test - - - - -	8
8. Marking - - - - -	8
9. Protection against corrosion - - - - -	9

APPENDIX

A. Section properties and design tables - - - - -	10
---	----

TABLE

1. Description and symbol - - - - -	5
2. Chemical composition - - - - -	5
3. Mechanical properties - - - - -	6
4. Tolerances for shape and dimension - - - - -	7
5. Tolerance for mass - - - - -	8
6. Dimensions of test piece - - - - -	8
A.7. Plain channel sections (Min. $R_e = 250 \text{ N/mm}^2$) - - - - -	10
A.8. Equal angle sections (Min. $R_e = 250 \text{ N/mm}^2$) - - - - -	13
A.9a. Lipped channel sections (Min. $R_e = 250 \text{ N/mm}^2$) - - - - -	14
A.9b. Lipped channel sections (Min. $R_e = 450 \text{ N/mm}^2$) - - - - -	18
A.10a. Lipped Z sections (Min. $R_e = 250 \text{ N/mm}^2$) - - - - -	20
A.10b. Lipped Z sections (Min. $R_e = 450 \text{ N/mm}^2$) - - - - -	22

SINGAPORE STANDARD
**COLD-FORMED STEEL SECTIONS
FOR GENERAL STRUCTURES**

FOREWORD

This specification was prepared by the Technical Committee on review of SS 104 under the direction of the Building Materials Product Standards Committee.

It is a revision of SS 104 : 1974 'Specification for light gauge steel for general structures'. It incorporates in particular the following changes from the previous standard:

- (a) Steel sections with minimum yield strength of 450 N/mm² have been included;
- (b) The types of sections have been reduced from six to four and the scope limited to sections of thickness 6 mm or less;
- (c) The method of tensile test in accordance with ISO 6892;
- (d) A new clause on protection against corrosion;

Appendix A of this Singapore Standard is for information only. Other shapes and sections not listed in this standard are not precluded for use provided they comply with the requirements of this specification.

In preparing this specification, reference was made to the following standards :

- | | | |
|----|----------------------|--|
| 1. | AS 1397 : 1993 | Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated |
| 2. | BS 1449 : - | Steel plate, sheet and strip
Part 1. Carbon and carbon-manganese plate, sheet and strip -
Section 1.4 : 1991 Specification for hot rolled wide material
based on specified minimum strength |
| 3. | BS 2994 : 1976(1987) | Specification for cold rolled steel sections |
| 4. | ISO 6892 : 1984 | Metallic materials - Tensile testing |
| 5. | JIS G 3350 : 1987 | Light gauge steels for general structure. |

Acknowledgement is made for the use of information from the above references.

NOTE

- 1. Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The revisions of Singapore Standards are announced through the issue of either amendment slips or revised editions.
- 2. Compliance with a Singapore Standard does not exempt users from legal obligations.





1. SCOPE

This standard specifies four simple types of cold-formed steel sections of thickness 6 mm or less for use in buildings or other structures.

2. DESCRIPTION AND SYMBOL

The description and symbol of the cold-formed steel sections shall be as shown in Table 1.

Table 1. Description and symbol

Description	Symbol
Plain channel section	
Angle section	
Lipped channel section	
Lipped Z section	

3. METHOD OF MANUFACTURE

Cold-formed steel sections shall be manufactured from steel plates or strips by the press-brake method or the roll-forming method, depending on the size, shape, thickness and length of the desired product.

4. CHEMICAL COMPOSITION

The chemical composition of the cold-formed steel shall conform to Table 2 when determined according to the ladle analysis.

Table 2. Chemical composition

Yield strength (R_e) min. N/mm ²	Carbon (C) max. %	Phosphorus (P) max. %	Sulphur (S) max. %	Manganese (Mn) max. %
250	0.25	0.050	0.050	1.20
450	0.20	0.040	0.030	1.20