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Third edition
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Steel — Conversion of elongation values —

Part 1: Carbon and low-alloy steels

Acier — Conversion des valeurs d'allongement —

Partie 1: Aciers au carbone et aciers faiblement alliés

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 20, *General technical delivery conditions, sampling and mechanical testing methods,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 459/SC 1, *Test methods for steel (other than chemical analysis),* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 2566-1:1984), of which it constitutes a minor revision. The changes are as follows:

— complete editorial revision;

— Tables 2 to 5 have been renamed due to reordering in order to follow the logical flow of information of this document;

— Clause 9 has been restructured into four sub-clauses in order to follow the logical flow of information of this document.

A list of all parts in the ISO 2566 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Several different gauge lengths are commonly in use for the determination of percentage elongation of steels in tensile testing. Fixed gauge lengths of 50 mm, 80 mm, 100 mm and 200 mm are used; proportional gauge lengths of $k\sqrt{S_0}$ are also used for flat and round test pieces, where k may be one of a number of values, i.e. 4; 5,65; 8,16 or 11,3.

The value $5{,}65\sqrt{S_0}$ is adopted as the internationally preferred proportional gauge length.

Arising from this choice and the existence of specifications stipulating minimum percentage elongations on different gauge lengths, a growing need has been evident for an International Standard that could be used to convert test results into values based on the different gauge lengths. Accordingly, this document includes tables of conversion factors, tables of actual conversions for some of the most commonly used gauge lengths and elongation values, and figures which may also be used for such conversions. When using these conversions, however, note should be taken of the limitations on their applicability, as stated in Clause 1.

Steel — Conversion of elongation values —

Part 1: Carbon and low-alloy steels

1 Scope

This document specifies a method of converting room temperature percentage elongations after fracture obtained on various proportional and non-proportional gauge lengths to other gauge lengths.

Formula (1), on which conversions are based, is considered to be reliable when applied to carbon, carbon manganese, molybdenum and chromium molybdenum steels within the tensile strength range 300 N/mm^2 to 700 N/mm^2 and in the hot-rolled, hot-rolled and normalized or annealed conditions, with or without tempering.

These conversions are not applicable to:

a) cold reduced steels;

b) quenched and tempered steels;

c) austenitic steels.

These conversions are not applicable when the gauge length exceeds $25\sqrt{S_0}$ or where the width to thickness ratio of the test piece exceeds 20.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
gauge length
length of the parallel portion of the test piece used for measurement of strain

Note 1 to entry: The term is hereafter used in this document to denote the original gauge length, L_0, marked on the test piece for the determination of percentage elongation after fracture, A.

3.1.2
proportional gauge length
gauge length (3.1.1) having a specified relation to the square root of the cross-sectional area, for example $5{,}65\sqrt{S_0}$

3.1.3
non-proportional gauge length
gauge length (3.1.1) not specifically related to the cross-sectional area of the test piece, usually expressed in a given dimension, for example 50 mm

3.2 Symbols

A	Percentage elongation after fracture on a gauge length, obtained on test
A_r	Percentage elongation on a different gauge length, required by conversion
d	Diameter of test piece
L_0	Original gauge length
S_0	Original cross-sectional area of test piece

4 Basic formula

The data contained in this document are based on the Oliver formula[1], which is now widely used for such elongation conversions. The Oliver formula can, in a simplified form, be expressed as Formula (1):

$$A_r = 1{,}74A\left(\frac{\sqrt{S_0}}{L_0}\right)^{0,4} \tag{1}$$

where

A_r is the required elongation on gauge length L_0;

A is the elongation on gauge length of $4\sqrt{S_0}$;

L_0 is the original gauge length;

S_0 is the original cross-sectional area of test piece.

Formula (1) gives a direct conversion of elongation on $4\sqrt{S_0}$ to the equivalent for a test piece of cross-sectional area S_0, and a gauge length L_0. Expressed in terms of $5{,}65\sqrt{S_0}$, which is now regarded as the internationally accepted standard gauge length, it becomes Formula (2):

$$A_r = 2A\left(\frac{\sqrt{S_0}}{L_0}\right)^{0,4} \tag{2}$$

where A is the elongation on gauge length of $5{,}65\sqrt{S_0}$.

Tables 1 to 21 and Figures 1 to 5 are based on Formulae (1) and (2).

Care should be exercised in the case of strip under 4 mm thickness, as the index in Formulae (1) and (2) increases with decreasing thickness; the value to be used shall be the subject of agreement between the customer and the supplier.

5 Requirements on conversions

While, as indicated, the conversions are considered to be reliable within the stated limitations, because of the various factors influencing the determination of percentage elongations, they shall be used for acceptance purposes only by agreement between the customer and supplier.

In cases of dispute, the elongation shall be determined on the gauge length stated in the relevant specification.

6 Conversion from one proportional gauge length to another proportional gauge length

Simple multiplying factors based on the formula are used for such conversions, and the relationships between several of the more widely used proportional gauge lengths are given in Table 1. Detailed conversions of elongations obtained on $4\sqrt{S_0}$ to $5{,}65\sqrt{S_0}$ are given in Table 2.

Table 1 — Conversion factors : Proportional gauge length

Conversion from:	Factor for conversion to:						
	$4\sqrt{S_0}$	$5{,}65\sqrt{S_0}$	$8{,}16\sqrt{S_0}$	$11{,}3\sqrt{S_0}$	$4d$	$5d$	$8d$
$4\sqrt{S_0}$	1,000	0,870	0,759	0,661	0,953	0,870	0,721
$5{,}65\sqrt{S_0}$	1,149	1,000	0,863	0,759	1,093	1,000	0,828
$8{,}16\sqrt{S_0}$	1,330	1,158	1,000	0,879	1,268	1,158	1,960
$11{,}3\sqrt{S_0}$	1,514	1,317	1,137	1,000	1,443	1,317	1,091
$4d$	1,050	0,916	0,790	0,694	1,000	0,916	0,758
$5d$	1,149	1,000	0,863	0,759	1,093	1,000	0,828
$8d$	1,389	1,207	1,042	0,918	1,319	1,207	1,000

Table 2 — Elongation values[a] on $5{,}65\sqrt{S_0}$ corresponding to those obtained on $4\sqrt{S_0}$ gauge length

Actual elongation (%) measured on $4\sqrt{S_0}$	Corresponding elongation (%) on $5{,}65\sqrt{S_0}$									
	0	1	2	3	4	5	6	7	8	9
10	9	10	10	11	12	13	14	15	16	17
20	17	18	19	20	21	22	23	23	24	25
30	26	27	28	29	30	30	31	32	33	34
40	35	36	37	37	38	39	40	41	42	43
50	43	44	45	46	47	48	49	50	50	51

[a] Factor 0,87. Values rounded to nearest whole number.

7 Conversion from one non-proportional gauge length to another non-proportional gauge length for test pieces of equal cross-sectional area

The conversion of elongation values of different fixed gauge lengths on test pieces of equal cross-sectional area are also made by simple factors. Conversion factors for gauge lengths of 50 mm, 80 mm, 100 mm and 200 mm are given in Table 3.

Table 3 — Conversion factors[a]: Non-proportional gauge length

Conversion from:	Factor for conversion to:			
	50 mm	80 mm	100 mm	200 mm
50 mm	1,000	0,829	0,758	0,754
80 mm	1,207	1,000	0,915	0,693
100 mm	1,320	1,093	1,000	0,758
200 mm	1,741	1,443	1,320	1,000

[a] Provided cross-sectional areas are the same.

8 Conversion from a non-proportional gauge length to another non-proportional gauge length for test pieces of different cross-sectional areas

It is preferable for this calculation to be made in two stages with an initial conversion to $5{,}65\sqrt{S_0}$.

EXAMPLE

Elongation of 24 % on 200 mm for a 40 mm x 15 mm test piece in terms of equivalent on a 30 mm x 10 mm test piece with gauge lengths equal to 200 mm, 100 mm and 50 mm.

24 x 1/0,863 = 27,8 % on $5{,}65\sqrt{S_0}$ (see Table 3)

27,8 x 0,752 = 20,9 % on 30 mm x 10 mm with 200 mm gauge length

27,8 x 0,992 = 27,6 % on 30 mm x 10 mm with 100 mm gauge length

27,8 x 1,309 = 36,4 % on 30 mm x 10 mm with 50 mm gauge length

Elongation on other proportional gauge lengths can be obtained by using the factors given in Table 1.

9 Conversion from a proportional gauge length to a non-proportional gauge length

9.1 General

The conversion factors are variable according to the cross-sectional area of the non-proportional test piece. Table 4 gives the multiplying factors for conversion from elongation on $5{,}65\sqrt{S_0}$ to the equivalent on fixed gauge lengths of 50 mm, 80 mm, 100 mm and 200 mm for a range of cross-sectional areas. For conversions in the reverse direction, i.e. elongation on a fixed gauge length to the equivalent of $5{,}65\sqrt{S_0}$, the reciprocal of the factors is used.

EXAMPLE

a) Elongation of 20 % on $5{,}65\sqrt{S_0}$ is equivalent to 20 x 1,139 = 22,78 % on a 25 mm wide test piece of 6 mm thickness with a 50 mm gauge length (see Table 4);

b) Elongation of 25 % on a 40 mm x 10 mm test piece of 200 mm gauge length is equivalent to 25 x 1/0,796 = 31,4 % on $5{,}65\sqrt{S_0}$ (see Table 4).

From the examples shown, it will be seen that conversions involving other proportional gauge lengths can be obtained by prior or subsequent use of the factors shown in Table 1.

9.2 Conversion factors from $5{,}65\sqrt{S_0}$ to non-proportional gauge length

Factors shown under "non-proportional gauge lengths" give the value of

$$2\left(\frac{\sqrt{S_0}}{L}\right)^{0,4}$$

To convert from values on a gauge length of $5{,}65\sqrt{S_0}$ to a non-proportional gauge length, multiply by the appropriate factor.

To convert from values on a non-proportional gauge length to $5{,}65\sqrt{S_0}$, divide by the appropriate factor.

See also Figures 1 and 2.

Table 4 — Conversion factors from $5{,}65\sqrt{S_0}$ to non-proportional gauge lengths

Cross sectional area of test piece:	Factor for non-proportional gauge length of:			
mm^2	200 mm	100 mm	80 mm	50 mm
5	0,331	0,437	0,478	0,577
10	0,381	0,502	0,549	0,663
15	0,413	0,545	0,596	0,719
20	0,437	0,577	0,631	0,761
25	0,457	0,603	0,660	0,796
30	0,474	0,626	0,684	0,826
35	0,489	0,645	0,706	0,852
40	0,502	0,663	0,725	0,875
45	0,514	0,679	0,742	0,896
50	0,525	0,693	0,758	0,915
55	0,535	0,706	0,772	0,932
60	0,545	0,719	0,786	0,949
70	0,562	0,741	0,811	0,978
80	0,577	0,761	0,833	1,005
90	0,591	0,780	0,852	1,029
100	0,603	0,796	0,871	1,051
110	0,615	0,812	0,887	1,071
120	0,626	0,826	0,903	1,090
130	0,636	0,839	0,917	1,107
140	0,645	0,852	0,931	1,124
150	0,654	0,863	0,944	1,139
160	0,663	0,875	0,956	1,154
170	0,671	0,885	0,968	1,168
180	0,679	0,896	0,979	1, 182
190	0,686	0,905	0,990	1,195
200	0,693	0,915	1,000	1,207
210	0,700	0,924	1,010	1,219
220	0,706	0,932	1,019	1,230
230	0,713	0,941	1,028	1,241

Table 4 *(continued)*

Cross sectional area of test piece:	Factor for non-proportional gauge length of:			
mm^2	200 mm	100 mm	80 mm	50 mm
240	0,719	0,949	1,037	1,252
250	0,725	0,956	1,046	1,262
260	0,730	0,964	1,054	1,272
270	0,736	0,971	1,062	1,281
280	0,741	0,978	1,070	1,291
290	0,747	0,985	1,077	1,300
300	0,752	0,992	1,084	1,309
310	0,757	0,998	1,092	1,317
320	0,761	1,005	1,099	1,326
330	0,766	1,011	1,105	1,334
340	0,771	1,017	1,112	1,342
350	0,775	1,023	1,118	1,350
360	0,780	1,029	1,125	1,357
370	0,784	1,034	1,131	1,365
380	0,788	1,040	1,137	1,372
390	0,792	1,045	1,143	1,379
400	0,796	1,051	1,149	1,386
410	0,800	1,056	1,154	1,393
420	0,804	1,061	1,160	1,400
430	0,808	1,066	1,165	1,406
440	0,812	1,071	1,171	1,413
450	0,815	1,076	1,176	1,419
460	0,819	1,080	1,181	1,426
470	0,822	1,085	1,186	1,432
480	0,826	1,090	1,191	1,438
490	0,829	1,094	1,196	1,444
500	0,833	1,099	1,201	1,450
550	0,849	1,120	1,224	1,477
600	0,863	1,139	1,246	1,503
650	0,877	1,158	1,266	1,528
700	0,891	1,175	1,285	1,550
750	0,903	1,191	1,303	1,572
800	0,915	1,207	1,320	1,592
850	0,926	1,222	1,336	1,612
900	0,936	1,236	1,351	1,630
950	0,947	1,249	1,366	1,648
1 000	0,956	1,262	1,380	1,665
1 050	0,966	1,274	1,393	1,681
1 100	0,975	1,286	1,406	1,697
1 150	0,983	1,298	1,419	1,712
1 200	0,992	1,309	1,431	1,727
1 250	1,000	1,320	1,443	1,741

Table 4 *(continued)*

Cross sectional area of test piece:	Factor for non-proportional gauge length of:			
mm^2	200 mm	100 mm	80 mm	50 mm
1 300	1,008	1,330	1,454	1,755
1 350	1,016	1,340	1,465	1,768
1 400	1,023	1,350	1,476	1,781
1 450	1,030	1,359	1,486	1,794
1 500	1,037	1,369	1,496	1,806
1 550	1,044	1,378	1,506	1,818
1 600	1,051	1,386	1,516	1,829
1 650	1,057	1,395	1,525	1,841
1 700	1,063	1,403	1,534	1,852
1 750	1,070	1,411	1,543	1,862
1 800	1,076	1,419	1,552	1,873
1 850	1,082	1,427	1,560	1,883
1 900	1,087	1,435	1,569	1,893
1 950	1,093	1,442	1,577	1,903
2 000	1,099	1,450	1,585	1,913
2 050	1,104	1,457	1,593	1,922
2 100	1,109	1,464	1,600	1,931
2 150	1,115	1,471	1,608	1,941
2 200	1,120	1,477	1,615	1,950
2 250	1,125	1,484	1,623	1,958
2 300	1,130	1,491	1,630	1,967
2 350	1,135	1,497	1,637	1,975
2 400	1,139	1,503	1,644	1,984
2 450	1,144	1,510	1,651	1,992
2 500	1,149	1,516	1,657	2,000
2 550	1,153	1,522	1,664	2,008
2 600	1,158	1,528	1,670	2,016
2 650	1,162	1,533	1,677	2,023
2 700	1,167	1,539	1,683	2,031
2 750	1,171	1,545	1,689	2,038
2 800	1,175	1,550	1,695	2,046
2 850	1,179	1,556	1,701	2,053
2 900	1,183	1,561	1,707	2,060
2 950	1,187	1,567	1,713	2,067
3 000	1,191	1,572	1,719	2,074

9.3 Conversion factors from $4\sqrt{S_0}$ to non-proportional gauge length

Factors shown under "non-proportional gauge length" give the value of

$$1{,}74\left(\frac{\sqrt{S_0}}{L}\right)^{0{,}4}$$

To convert from values on a gauge length of $4\sqrt{S_0}$ to a non-proportional gauge length, multiply by the appropriate factor.

To convert from values on a non-proportional gauge length to $4\sqrt{S_0}$, divide by the appropriate factor.

See also Figures 3 and 4.

Table 5 — Conversion factors from $4\sqrt{S_0}$ to non-proportional gauge length

Cross sectional area of test piece:	Factor for non-proportional gauge length of:			
mm^2	200 mm	100 mm	80 mm	50 mm
5	0,288	0,380	0,416	0,502
10	0,331	0,437	0,478	0,577
15	0,359	0,474	0,518	0,625
20	0,380	0,502	0,549	0,662
25	0,398	0,525	0,574	0,693
30	0,413	0,544	0,595	0,718
35	0,426	0,562	0,614	0,741
40	0,437	0,577	0,631	0,761
45	0,447	0,590	0,646	0,779
50	0,457	0,603	0,659	0,796
55	0,466	0,615	0,672	0,811
60	0,474	0;625	0,684	0,825
70	0,489	0,645	0,705	0,851
80	0,502	0,662	0,724	0,874
90	0,514	0,678	0,742	0,895
100	0,525	0,693	0,757	0,914
110	0,535	0,706	0,772	0,932
120	0,544	0,718	0,786	0,948
130	0,553	0,730	0,798	0,963
140	0,562	0,741	0,810	0,978
150	0,560	0,751	0,821	0,991
160	0,577	0,761	0,832	1,004
170	0,584	0,770	0,642	1,016
180	0,590	0,779	0,852	1,028
190	0,597	0,788	0,861	1,039
200	0,603	0,796	0,870	1,050
210	0,609	0,804	0,879	1,060
220	0,615	0,811	0,887	1,070
230	0,620	0,818	0,895	1,080
240	0,625	0,825	0,902	1,089

Table 5 *(continued)*

Cross sectional area of test piece:	Factor for non-proportional gauge length of:			
mm^2	200 mm	100 mm	80 mm	50 mm
250	0,631	0,832	0,910	1,098
260	0,636	0,839	0,917	1,107
270	0,640	0,845	0,924	1,115
280	0,645	0,851	0,931	1,123
290	0,650	0,857	0,937	1,131
300	0,654	0,863	0,943	1,139
310	0,658	0,869	0,950	1,146
320	0,662	0,874	0,956	1,153
330	0,667	0,880	0,962	1,161
340	0,671	0,885	0,967	1,168
350	0,674	0,890	0,973	1,174
360	0,678	0,895	0,979	1,181
370	0,682	0,900	0,984	1,187
380	0,686	0, 905	0,989	1,194
390	0,689	0,909	0,994	1,200
400	0,693	0,914	0,999	1,206
410	0,696	0,919	1,004	1,212
420	0,699	0,923	1,009	1,218
430	0,703	0,927	1,014	1,224
440	0,706	0,932	1,019	1,229
450	0,709	0,936	l,023	1,235
460	0,712	0,940	1,028	1,240
470	0,715	0,944	1,032	1,246
480	0,718	0,948	1,036	1,251
490	0,721	0,952	1,041	1,256
500	0,724	0,956	1,045	1,261
550	0,738	0,974	1,065	1,285
600	0,751	0,991	1,084	1,308
650	0,763	1,007	1,101	1,329
700	0,775	1,022	1,118	1,349
750	0,786	1,036	1,133	1,368
800	0,796	1,050	1,148	1,385
850	0,805	1,063	1,162	1,402
900	0,815	1,075	1,175	1,418
950	0,824	1,087	1,188	1,434
1 000	0,832	1,098	1,200	1,449
1 050	0,840	1,109	1,212	1,463
1 100	0,848	1,119	1,223	1,477
1 150	0,856	1,129	1,234	1,490
1 200	0,863	1,139	1,245	1,502
1 250	0,870	1,148	1,255	1,515
1 300	0,877	1,157	1,265	1,527

Table 5 *(continued)*

Cross sectional area of test piece:	Factor for non-proportional gauge length of:			
mm^2	200 mm	100 mm	80 mm	50 mm
1 350	0,883	1,166	1,275	1,538
1 400	0,890	1,174	1,284	1,549
1 450	0,896	1,183	1,293	1,560
1 500	0,902	1,191	1,302	1,571
1 550	0,908	1,198	1,310	1,581
1 600	0,914	1,206	1,319	1,591
1 650	0,920	1,214	1,327	1,601
1 700	0,925	1,221	1,335	1,611
1 750	0,931	1,228	1,343	1,620
1 800	0,936	1,235	1,350	1,629
1 850	0,941	1,242	1,358	1,638
1 900	0,946	1,248	1,365	1,647
1 950	0,951	1,255	1,372	1,656
2 000	0,956	1,261	1,379	1,664
2 050	0,960	1,267	1,386	1,672
2 100	0,965	1,273	1,392	1,680
2 150	0,970	1,279	1,399	1,688
2 200	0,974	1,285	1,405	1,696
2 250	0,979	1,291	1,412	1,704
2 300	0,983	1,297	1,418	1,711
2 350	0,987	1,302	1,424	1,719
2 400	0,991	1,308	1,430	1,726
2 450	0,995	1,313	1,436	1,733
2 500	0,999	1,319	1,442	1,740
2 550	1,003	1,324	1,448	1,747
2 600	1,007	1,329	1,453	1,754
2 650	1,011	1,334	1,459	1,760
2 700	1,015	1,339	1,464	1,767
2 750	1,019	1,344	1,470	1,773
2 800	1,022	1,349	1,475	1,780
2 850	1,026	1,354	1,480	1,786
2 900	1,029	1,358	1,485	1,792
2 950	1,033	1,363	1,490	1,799
3 000	1,036	1,368	1,495	1,805

9.4 Elongation values

Tables 6 to 9 can be used for conversion to $5{,}65\sqrt{S_0}$, whilst Tables 14 to 17 can be used to obtain elongation on fixed gauge lengths corresponding to $5{,}65\sqrt{S_0}$. Similarly, Tables 10 to 13 can be used for conversion to $4\sqrt{S_0}$ and Tables 18 to 21 for elongations on fixed gauge lengths corresponding to $4\sqrt{S_0}$.

Table 6 — Elongation values[a] on $5{,}65\sqrt{S_0}$ corresponding to those obtained on 50 mm gauge length

Actual elongation (%) on 50 mm gauge length	Corresponding elongation (%) on $5{,}65\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
18	31	27	24	21	19	18	17	16	15	14	14	13	12	12	12	11	11	11	10	10	9	9
19	33	29	25	22	20	19	18	17	16	15	15	14	13	13	12	12	12	11	11	11	10	10
20	35	30	26	23	21	20	19	18	17	16	15	14	14	13	13	13	12	12	12	11	10	10
21	36	32	28	24	22	21	20	18	17	17	16	15	14	14	14	13	13	13	12	12	11	11
22	38	33	29	25	23	22	21	19	18	17	17	16	15	15	14	14	13	13	13	12	12	11
23	40	35	30	26	24	23	22	20	19	18	18	17	16	15	15	14	14	14	13	13	12	12
24	42	36	32	27	25	24	23	21	20	19	18	17	17	16	15	15	15	14	14	13	13	12
25	43	38	33	29	26	25	24	22	21	20	19	18	17	17	16	16	15	15	14	14	13	13
26	45	39	34	30	27	26	25	23	22	21	20	19	18	17	17	16	16	16	15	14	14	13
27	47	41	35	31	28	27	26	24	22	21	21	19	19	18	17	17	17	16	16	15	14	14
28	49	42	37	32	30	28	27	25	23	22	21	20	19	19	18	18	17	17	16	16	15	14
29	50	44	38	33	31	29	28	25	24	23	22	21	20	19	19	18	18	17	17	16	15	15
30	52	45	39	34	32	30	29	26	25	24	23	22	21	20	19	19	18	18	17	17	16	15
31	54	47	41	35	33	31	30	27	26	25	24	22	21	21	20	19	19	19	18	17	16	16
32	55	48	42	37	34	32	30	28	27	25	24	23	22	21	21	20	20	19	19	18	17	16
33	57	50	43	38	35	33	31	29	27	26	25	24	23	22	21	21	20	20	19	18	17	17
34	59	51	45	39	36	34	32	30	28	27	26	25	23	23	22	21	21	20	20	19	18	17
35	61	53	46	40	37	35	33	31	29	28	27	25	24	23	23	22	21	21	20	19	18	18
36	62	54	47	41	38	36	34	32	30	29	28	26	25	24	23	23	22	22	21	20	19	18
37	64	56	49	42	39	37	35	32	31	29	28	27	26	25	24	23	23	22	21	20	19	19
38	66	57	50	43	40	38	36	33	31	30	29	27	26	25	25	24	23	23	22	21	20	19
39	68	59	51	45	41	39	37	34	32	31	30	28	27	26	25	24	24	23	23	22	20	20
40	69	60	53	46	42	40	38	35	33	32	31	29	28	27	26	25	25	24	23	22	21	20
41	71	62	54	47	43	41	39	36	34	32	31	30	28	27	26	26	25	25	24	23	21	21
42	73	63	55	48	44	42	40	37	35	33	32	30	29	28	27	26	26	25	24	23	22	21
43	75	65	56	49	45	43	41	38	36	34	33	31	30	29	28	27	26	26	25	24	22	22
44	76	66	58	50	46	44	42	39	36	35	34	32	30	29	28	28	27	26	25	24	23	22
45	78	68	59	51	47	45	43	39	37	36	34	32	31	30	29	28	28	27	26	25	24	23
46	80	69	60	53	48	46	44	40	38	36	35	33	32	31	30	29	28	28	27	25	24	23
47	81	71	62	54	50	47	45	41	39	37	36	34	32	31	30	30	29	28	27	26	25	24

[a] Rounded up to the nearest whole number.

Table 7 — Elongation values[a] on $5{,}65\sqrt{S_0}$ corresponding to those obtained on 80 mm gauge length

Actual elongation (%) on 80 mm gauge length	Corresponding elongation (%) on $5{,}65\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	21	18	16	14	13	12	11	11	10	10	9	9	8	8	8	8	7	7	7	7	6	6
11	23	20	17	15	14	13	13	12	11	11	10	10	9	9	9	8	8	8	8	7	7	7
12	25	22	19	17	15	14	14	13	12	11	11	10	10	10	9	9	9	9	8	8	8	7
13	27	24	21	18	17	16	15	14	13	12	12	11	11	10	10	10	10	9	9	9	8	8
14	29	25	22	19	18	17	16	15	14	13	13	12	12	11	11	11	10	10	10	9	9	8
15	31	27	24	21	19	18	17	16	15	14	14	13	12	12	12	11	11	11	10	10	9	9
16	33	29	25	22	20	19	18	17	16	15	15	14	13	13	12	12	12	12	11	11	10	10
17	36	31	27	23	22	20	20	18	17	16	16	15	14	14	13	13	13	12	12	11	11	10
18	38	33	29	25	23	22	21	19	18	17	17	16	15	14	14	14	13	13	13	12	11	11
19	40	35	30	26	24	23	22	20	19	18	18	17	16	15	15	14	14	14	13	13	12	11
20	42	36	32	28	25	24	23	21	20	19	18	17	17	16	16	15	15	14	14	13	13	12
21	44	38	33	29	27	25	24	22	21	20	19	18	17	17	16	16	16	15	15	14	13	13
22	46	40	35	30	28	26	25	23	22	21	20	19	18	18	17	17	16	16	15	15	14	13
23	48	42	36	32	29	28	26	24	23	22	21	20	19	18	18	17	17	17	16	15	15	14
24	50	44	38	33	31	29	28	25	24	23	22	21	20	19	19	18	18	17	17	16	15	14
25	52	46	40	34	32	30	29	26	25	24	23	22	21	20	19	19	19	18	17	17	16	15
26	54	47	41	36	33	31	30	28	26	25	24	23	22	21	20	20	19	19	18	17	16	16
27	56	49	43	37	34	32	31	29	27	26	25	24	22	22	21	20	20	20	19	18	17	16
28	59	51	44	39	36	34	32	30	28	27	26	24	23	22	22	21	21	20	20	19	18	17
29	61	53	46	40	37	35	33	31	29	28	27	25	24	23	23	22	21	21	20	19	18	17
30	63	55	48	41	38	36	34	32	30	29	28	26	25	24	23	23	22	22	21	20	19	18
31	65	56	49	43	39	37	36	33	31	30	29	27	26	25	24	23	23	22	22	21	20	19
32	67	58	51	44	41	38	37	34	32	31	30	28	27	26	25	24	24	23	22	21	20	19
33	69	60	52	46	42	40	38	35	33	32	30	29	27	26	26	25	24	24	23	22	21	20
34	71	62	54	47	43	41	39	36	34	33	31	30	28	27	26	26	25	25	24	23	21	21
35	73	64	55	48	45	42	40	37	35	33	32	30	29	28	27	27	26	25	24	23	22	21
36	75	66	57	50	46	43	41	38	36	34	33	31	30	29	28	27	27	26	25	24	23	22
37	77	67	59	51	47	44	43	39	37	35	34	32	31	30	29	28	27	27	26	25	23	22
38	79	69	60	52	48	46	44	40	38	36	35	33	32	31	30	29	28	28	27	25	24	23
39	82	71	62	54	50	47	45	41	39	37	36	34	32	31	30	30	29	28	27	26	25	24
40	84	73	63	55	51	48	46	42	40	38	37	35	33	32	31	30	30	29	28	27	25	24
41	86	75	65	57	52	49	47	43	41	39	38	36	34	33	32	31	30	30	29	27	26	25
42	88	76	67	58	53	50	48	44	42	40	39	37	35	34	33	32	31	30	29	28	27	25
43	90	78	68	59	55	52	49	46	43	41	40	37	36	35	33	33	32	31	30	29	27	26
44	92	80	70	61	56	53	51	47	44	42	41	38	37	35	34	33	33	32	31	29	28	27
45	94	82	71	62	57	54	52	48	45	43	41	39	37	36	35	34	33	33	31	30	28	27
46	96	84	73	63	59	55	53	49	46	44	42	40	38	37	36	35	34	33	32	31	29	28
47	98	86	74	65	60	56	54	50	47	45	43	41	39	38	37	36	35	34	33	31	30	28

[a] Rounded up to the nearest whole number.

Table 8 — Elongation values[a] on $5{,}65\sqrt{S_0}$ corresponding to those obtained on 100 mm gauge length

Actual elongation (%) on 100 mm gauge length	Corresponding elongation (%) on $5{,}65\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
18	41	36	31	27	25	24	23	21	20	19	18	17	16	16	15	15	15	14	14	13	12	12
19	43	38	33	29	26	25	24	22	21	20	19	18	17	17	16	16	15	15	15	14	13	13
20	46	40	35	30	28	26	25	23	22	21	20	19	18	18	17	17	16	16	15	15	14	13
21	48	42	36	32	29	28	26	24	23	22	21	20	19	18	18	17	17	17	16	15	14	14
22	50	44	38	33	31	29	28	25	24	23	22	21	20	19	19	18	18	17	17	16	15	15
23	53	46	40	35	32	30	29	27	25	24	23	22	21	20	20	19	19	18	18	17	16	15
24	55	48	42	36	33	32	30	28	26	25	24	23	22	21	20	20	19	19	18	18	17	16
25	57	50	43	38	35	33	31	29	27	26	25	24	23	22	21	21	20	20	19	18	17	16
26	59	52	45	39	36	34	33	30	28	27	26	25	24	23	22	22	21	21	20	19	18	17
27	62	54	47	41	38	35	34	31	30	28	27	26	25	24	23	22	22	21	21	20	19	18
28	64	56	49	42	39	37	35	32	31	29	28	27	25	25	24	23	23	22	21	20	19	18
29	66	58	50	44	40	38	36	34	32	30	29	28	26	25	25	24	23	23	22	21	20	19
30	69	60	52	45	42	39	38	35	33	31	30	29	27	26	26	25	24	24	23	22	21	20
31	71	62	54	47	43	41	39	36	34	32	31	30	28	27	26	26	25	25	24	23	21	20
32	73	64	55	48	45	42	40	37	35	33	32	30	29	28	27	27	26	25	24	23	22	21
33	75	66	57	50	46	43	41	38	36	35	33	31	30	29	28	27	27	26	25	24	23	22
34	78	68	59	51	47	45	43	39	37	36	34	32	31	30	29	28	28	27	26	25	23	22
35	80	70	61	53	49	46	44	41	38	37	35	33	32	31	30	29	28	28	27	26	24	23
36	82	72	62	54	50	47	45	42	39	38	36	34	33	32	31	30	29	29	28	26	25	24
37	85	74	64	56	51	49	46	43	40	39	37	35	34	32	31	31	30	29	28	27	26	24
38	87	76	66	57	53	50	48	44	42	40	38	36	35	33	32	31	31	30	29	28	26	25
39	89	78	68	59	54	51	49	45	43	41	39	37	36	34	33	32	32	31	30	28	27	26
40	91	80	69	60	56	53	50	46	44	42	40	38	36	35	34	33	32	32	31	29	28	26
41	94	82	71	62	57	54	51	47	45	43	41	39	37	36	35	34	33	32	31	30	28	27
42	96	84	73	63	58	55	53	49	46	44	42	40	38	37	36	35	34	33	32	31	29	28
43	98	86	75	65	60	56	54	50	47	45	43	41	39	38	37	36	35	34	33	31	30	28
44	101	88	76	66	61	58	55	51	48	46	44	42	40	39	37	36	36	35	34	32	30	29
45	103	90	78	68	63	59	57	52	49	47	45	43	41	39	38	37	36	36	34	33	31	30
46	105	92	80	69	64	60	58	53	50	48	46	44	42	40	39	38	37	36	35	34	32	30
47	107	94	81	71	65	62	59	54	51	49	47	45	43	41	40	39	38	37	36	34	32	31

[a] Rounded up to the nearest whole number.

Table 9 — Elongation values[a] on $5{,}65\sqrt{S_0}$ corresponding to those obtained on 200 mm gauge length

Actual elongation (%) on 200 mm gauge length	Corresponding elongation (%) on $5{,}65\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
18	54	47	41	36	33	31	30	28	26	25	24	23	22	21	20	20	19	19	18	17	16	16
19	57	50	43	38	35	33	31	29	27	26	25	24	23	22	21	21	20	20	19	18	17	17
20	60	53	46	40	37	35	33	31	29	28	27	25	24	23	22	22	21	21	20	19	18	17
21	63	55	48	42	39	36	35	32	30	29	28	26	25	24	24	23	22	22	21	20	19	18
22	66	58	50	44	40	38	36	34	32	30	29	28	26	25	25	24	23	23	22	21	20	19
23	69	60	53	46	42	40	38	35	33	32	21	29	28	26	25	25	24	23	23	22	21	20
24	72	63	55	48	44	42	40	37	35	33	32	30	29	28	27	26	26	25	24	23	22	21
25	75	66	57	50	46	43	41	38	36	34	33	31	30	29	28	27	27	26	25	24	23	22
26	78	68	59	52	48	45	43	40	38	36	35	33	31	30	29	28	28	27	26	25	24	23
27	81	71	62	54	50	47	45	41	39	37	36	34	32	31	30	30	29	28	27	26	25	24
28	84	74	64	56	51	49	46	43	40	39	37	35	34	32	31	31	30	29	28	27	25	24
29	87	76	66	58	53	50	48	44	42	40	39	36	35	34	33	32	31	30	29	28	26	25
30	91	79	69	60	55	52	50	46	43	41	40	38	36	35	34	33	32	31	30	29	27	26
31	94	81	71	62	57	54	51	47	45	43	41	39	37	36	35	34	33	32	31	30	28	27
32	97	84	73	64	59	55	53	49	46	44	43	40	38	37	36	35	34	33	32	31	29	28
33	100	87	75	66	61	57	55	50	48	46	44	41	40	38	37	36	35	35	33	32	30	29
34	103	89	78	68	62	59	56	52	49	47	45	43	41	39	38	37	36	36	34	33	31	30
35	106	92	80	70	64	61	58	53	50	48	47	44	42	41	39	38	37	37	35	34	32	30
36	109	95	82	72	66	62	60	55	52	50	48	45	43	42	40	39	38	38	36	35	33	31
37	112	97	85	74	68	64	61	57	53	51	49	46	44	43	42	40	40	39	37	36	34	32
38	115	100	87	76	70	66	63	58	55	52	51	48	46	44	43	42	41	40	38	37	35	33
39	118	102	89	78	72	68	65	60	56	54	52	49	47	45	44	43	42	41	39	38	36	34
40	121	105	91	80	73	69	66	61	58	55	53	50	48	46	45	44	43	42	40	39	36	35
41	124	108	94	82	75	71	68	63	59	57	55	51	49	47	46	45	44	43	41	40	37	36
42	127	110	96	84	77	73	70	64	61	58	56	53	50	49	47	46	45	44	42	40	38	37
43	130	113	98	86	79	75	71	66	62	59	57	54	52	50	48	47	46	45	43	41	39	37
44	133	116	101	88	81	76	73	67	63	61	59	55	53	51	49	48	47	46	44	42	40	38
45	136	118	103	90	83	78	75	69	65	62	60	57	54	52	51	49	48	47	45	43	41	39
46	139	121	105	92	84	80	76	70	66	63	61	58	55	53	52	50	49	48	46	44	42	40
47	142	123	107	94	86	81	78	72	68	65	63	59	56	54	53	51	50	49	47	45	43	41

[a] Rounded up to the nearest whole number.

Table 10 — Elongation values[a] on $4\sqrt{S_0}$ corresponding to those obtained on 50 mm gauge length

Actual elongation (%) on 50 mm gauge length	Corresponding elongation (%) on $4\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
18	36	31	27	24	22	21	20	18	17	16	16	15	14	14	13	13	13	12	12	11	11	10
19	38	33	29	25	23	22	21	19	18	17	17	16	15	15	14	14	13	13	13	12	11	11
20	40	35	30	26	24	23	22	20	19	18	18	17	16	15	15	14	14	14	13	13	12	11
21	42	36	32	28	25	24	23	21	20	19	18	17	17	16	16	15	15	14	14	13	13	12
22	44	38	33	29	27	25	24	22	21	20	19	18	17	17	16	16	16	15	15	14	13	13
23	46	40	35	30	28	26	25	23	22	21	20	19	18	18	17	17	16	16	15	15	14	13
24	48	42	36	32	29	27	26	24	23	22	21	20	19	18	18	17	17	17	16	15	14	14
25	50	43	38	33	30	29	27	25	24	23	22	21	20	19	19	18	18	17	17	16	15	14
26	52	45	39	34	32	30	28	26	25	24	23	22	21	20	19	19	18	18	17	17	16	15
27	54	47	41	35	33	31	30	27	26	25	24	22	21	21	20	19	19	19	18	17	16	16
28	56	49	42	37	34	32	31	28	27	26	25	23	22	21	21	20	20	19	19	18	17	16
29	58	50	44	38	35	33	32	29	28	26	25	24	23	22	21	21	20	20	19	18	17	17
30	60	52	45	39	36	34	33	30	29	27	26	25	24	23	22	22	21	21	20	19	18	17
31	62	54	47	41	38	35	34	31	30	28	27	26	25	24	23	22	22	21	21	20	19	18
32	64	55	48	42	39	37	35	23	30	29	28	27	25	24	24	23	23	22	21	20	19	18
33	66	57	50	43	40	38	36	33	31	30	29	27	26	25	24	24	23	23	22	21	20	19
34	68	59	51	45	41	39	37	34	32	31	30	28	27	26	25	25	24	23	23	22	20	20
35	70	61	53	46	42	40	38	35	33	32	31	29	28	27	26	25	25	24	23	22	21	20
36	72	62	54	47	44	41	39	36	34	33	32	30	29	28	27	26	25	25	24	23	22	21
37	74	64	56	49	45	42	40	37	35	34	32	31	29	28	27	27	26	26	25	24	22	21
38	76	66	57	50	46	43	42	38	36	35	33	32	30	29	28	27	27	26	25	24	23	22
39	78	68	59	51	47	45	43	39	37	36	34	32	31	30	29	28	27	27	26	25	23	22
40	80	69	60	53	48	46	44	40	38	36	35	33	32	31	30	29	28	28	27	25	24	23
41	82	71	62	54	50	47	45	41	39	37	36	34	33	31	30	30	29	28	27	26	25	24
42	84	73	63	55	51	48	46	42	40	38	37	35	33	32	31	30	30	29	28	27	25	24
43	86	75	65	57	52	49	47	43	41	39	38	36	34	33	32	31	30	30	29	27	26	25
44	88	76	66	58	53	50	48	44	42	40	39	36	35	34	33	32	31	30	29	28	26	25
45	90	78	68	59	55	51	49	45	43	41	40	37	36	34	33	32	32	31	30	29	27	26
46	92	80	69	60	56	53	50	46	44	42	40	38	36	35	34	33	32	32	31	29	28	26
47	94	81	71	62	57	54	51	47	45	43	41	39	37	36	35	34	33	32	31	30	28	27

[a] Rounded up to the nearest whole number.

Table 11 — Elongation values[a] on $4\sqrt{S_0}$ corresponding to those obtained on 80 mm gauge length

Actual elongation (%) on 80 mm gauge length	Corresponding elongation (%) on $4\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	24	21	18	16	15	14	13	12	11	11	11	10	9	9	9	9	8	8	8	8	7	7
11	26	23	20	17	16	15	14	13	13	12	12	11	10	10	10	10	9	9	9	8	8	8
12	29	25	22	19	17	16	16	14	14	13	13	12	11	11	11	10	10	10	10	9	9	8
13	31	27	23	20	19	18	17	16	15	14	14	13	12	12	12	11	11	11	10	10	9	9
14	33	29	25	22	20	19	18	17	16	15	15	14	13	13	12	12	12	12	11	11	10	10
15	36	31	27	24	22	21	20	18	17	16	16	15	14	14	13	13	13	12	12	11	11	10
16	38	33	29	25	23	22	21	19	18	17	17	16	15	15	14	14	14	13	13	12	12	11
17	41	35	31	27	25	23	22	21	19	19	18	17	16	16	15	15	14	14	14	13	12	12
18	43	37	33	28	26	25	24	22	21	20	19	18	17	16	16	16	15	15	14	14	13	12
19	45	39	34	30	28	26	25	23	22	21	20	19	18	17	17	16	16	16	15	14	14	13
20	48	42	36	31	29	27	26	24	23	22	21	20	19	18	18	17	17	17	15	15	14	14
21	50	44	38	33	30	29	27	25	24	23	22	21	20	19	19	18	18	17	17	16	15	14
22	52	46	40	35	32	30	29	27	25	24	23	22	21	20	20	19	19	18	18	17	16	15
23	55	48	42	36	33	31	30	28	26	25	24	23	22	21	20	20	19	19	18	18	17	16
24	57	50	43	38	35	33	31	29	27	26	25	24	23	22	21	21	20	20	19	18	17	17
25	60	52	45	39	36	34	33	30	29	27	26	25	24	23	22	22	21	21	20	19	18	17
26	62	54	47	41	38	36	34	31	30	28	27	26	25	24	23	22	22	21	21	20	19	18
27	64	56	49	42	39	37	35	33	31	29	28	27	26	25	24	23	23	22	22	21	19	19
28	67	58	51	44	41	38	37	34	32	31	29	28	27	26	25	24	24	23	22	21	20	19
29	69	60	52	46	42	40	38	35	33	32	30	29	28	27	26	25	24	24	23	22	21	20
30	72	62	54	47	44	41	39	36	34	33	32	30	28	27	27	26	25	25	24	23	22	21
31	74	64	56	49	45	42	41	37	35	34	33	31	29	28	28	27	26	26	25	24	22	21
32	76	66	58	50	46	44	42	39	36	35	34	32	30	29	28	28	27	26	25	24	23	22
33	79	68	60	52	48	45	43	40	38	36	35	33	31	30	29	29	28	27	26	25	24	23
34	81	71	61	53	49	47	45	41	39	37	36	34	32	31	30	29	29	28	27	26	24	23
35	83	73	63	55	51	48	46	42	40	38	37	35	33	32	31	30	30	29	28	27	25	24
36	86	75	65	51	52	49	47	43	41	39	38	36	34	33	32	31	30	30	29	27	26	25
37	88	77	67	58	54	51	48	45	42	40	39	37	35	34	33	32	31	31	29	28	27	25
38	91	79	69	60	55	52	50	46	43	41	40	38	36	35	34	33	32	31	30	29	27	26
39	93	81	70	61	57	53	51	47	44	43	41	39	37	36	35	34	33	32	31	30	28	27
40	95	83	72	63	58	55	52	48	46	44	42	40	38	37	35	35	34	31	32	30	29	28
41	98	85	74	64	59	56	54	50	47	45	43	41	39	38	36	35	35	34	33	31	29	28
42	100	87	76	66	61	58	55	51	48	46	44	42	40	38	37	36	35	35	33	32	30	29
43	103	89	78	68	62	59	56	52	49	47	45	43	41	39	38	37	36	36	34	33	31	30
44	105	91	79	69	64	60	58	53	50	48	46	44	42	40	39	38	37	36	35	34	32	30
45	107	93	81	71	65	62	59	54	51	49	47	45	43	41	40	39	38	37	36	34	32	31
46	110	95	83	72	67	63	60	56	52	50	48	46	44	42	41	40	39	38	37	35	33	32
47	112	98	85	74	68	64	62	57	54	51	49	47	45	43	42	41	40	39	37	36	34	32

[a] Rounded up to the nearest whole number.

Table 12 — Elongation values[a] on $4\sqrt{S_0}$ corresponding to those obtained on 100 mm gauge length

Actual elongation (%) on 100 mm gauge length	Corresponding elongation (%) on $4\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
18	47	41	36	31	29	27	26	24	23	22	21	20	19	18	18	17	17	16	16	15	14	14
19	50	43	38	33	30	29	27	25	24	23	22	21	20	19	19	18	18	17	17	16	15	14
20	53	46	40	35	32	30	29	27	25	24	23	22	21	20	20	19	19	18	18	17	16	15
21	55	48	42	36	34	32	30	28	26	25	24	23	22	21	21	20	20	19	18	18	17	16
22	58	50	44	38	35	33	32	29	28	26	25	24	23	22	22	21	20	20	19	18	17	17
23	60	53	46	40	37	35	33	31	29	28	27	25	24	23	22	22	21	21	20	19	18	17
24	63	55	48	42	38	36	35	32	30	29	28	26	25	24	23	23	22	22	21	20	19	18
25	66	57	50	43	40	38	36	33	31	30	29	27	26	25	24	24	23	23	22	21	20	19
26	68	59	52	45	42	39	38	35	33	31	30	28	27	26	25	25	24	24	23	22	21	20
27	71	62	54	47	43	41	39	36	34	32	31	30	28	27	26	26	25	25	24	23	21	20
28	74	64	56	49	45	42	40	37	35	34	32	31	29	28	27	27	26	26	25	24	22	21
29	76	66	58	50	46	44	42	39	36	35	34	32	30	29	28	28	27	26	25	24	23	22
30	79	69	60	52	48	45	43	40	38	36	35	33	31	30	29	29	28	27	26	25	24	23
31	81	71	62	54	50	47	45	41	39	37	36	34	32	31	30	30	29	28	27	26	25	24
32	84	73	64	55	51	48	46	43	40	38	37	35	33	32	31	30	30	29	28	27	25	24
33	87	76	66	57	53	50	48	44	41	40	38	36	35	33	32	31	31	30	29	28	26	25
34	89	78	68	59	54	51	49	45	43	41	39	37	36	34	33	32	32	31	30	29	27	26
35	92	80	70	61	56	53	51	47	44	42	41	38	37	35	34	33	33	32	31	29	28	27
36	95	82	72	62	58	54	52	48	45	43	42	39	38	36	35	34	33	33	32	30	29	27
37	97	85	74	64	59	56	53	49	46	44	43	40	39	37	36	35	34	34	32	31	29	28
38	100	87	76	66	61	57	55	51	48	46	44	42	40	38	37	36	35	35	33	32	30	29
39	102	89	78	68	62	59	56	52	49	47	45	43	41	39	38	37	36	36	34	33	31	30
40	105	92	80	69	64	60	58	53	50	48	46	44	42	40	39	38	37	36	35	34	32	30
41	108	94	82	71	66	62	59	55	52	49	48	45	43	41	40	39	38	37	36	34	33	31
42	110	96	84	73	67	63	61	56	53	50	49	46	44	42	41	40	39	38	37	35	33	32
43	113	98	86	75	69	65	62	57	54	52	50	47	45	43	42	41	40	39	38	36	34	33
44	116	101	88	76	70	66	64	59	55	53	51	48	46	44	43	42	41	40	39	37	35	33
45	118	103	90	78	72	68	65	60	57	54	52	49	47	45	44	43	42	41	40	38	36	34
46	121	105	92	80	74	69	66	61	58	55	53	50	48	46	45	44	43	42	40	39	36	35
47	124	108	94	81	75	71	68	63	59	56	54	51	49	47	46	45	44	43	41	39	37	36

[a] Rounded up to the nearest whole number.

Table 13 — Elongation values[a] on $4\sqrt{S_0}$ corresponding to those obtained on 200 mm gauge length

Actual elongation (%) on 200 mm gauge length	Corresponding elongation (%) on $4\sqrt{S_0}$ gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
18	62	54	47	41	38	36	34	32	30	29	28	26	25	24	23	23	22	22	21	20	19	18
19	66	57	50	43	40	38	36	33	32	30	29	27	26	25	25	24	23	23	22	21	20	19
20	69	60	53	46	42	40	38	35	33	32	31	29	28	27	26	25	25	24	23	22	21	20
21	73	63	55	48	44	42	40	37	35	33	32	30	30	28	27	26	26	25	24	23	22	21
22	76	66	58	50	46	44	42	39	36	35	34	32	30	29	28	28	27	26	25	24	23	22
23	80	69	60	53	49	46	45	40	38	36	35	33	32	31	30	29	28	28	27	25	24	23
24	83	72	63	55	51	48	48	42	40	38	37	35	33	32	31	30	29	29	28	27	25	24
25	87	75	66	57	53	50	48	44	41	40	38	36	35	33	32	31	31	30	29	28	26	25
26	90	78	68	59	55	52	50	46	43	41	40	38	36	35	34	33	32	31	30	29	27	26
27	94	82	71	62	57	54	51	47	45	43	41	39	37	36	35	34	33	32	31	30	28	27
28	97	85	74	64	59	56	53	49	48	44	43	40	39	37	36	35	34	34	32	31	29	28
29	101	88	76	66	61	58	55	51	48	46	44	42	40	39	37	36	36	35	34	32	30	29
30	104	91	79	69	63	60	57	53	50	48	46	43	41	40	39	38	37	36	35	33	31	30
31	108	94	81	71	65	62	59	54	51	49	47	45	43	41	40	39	38	37	36	34	32	31
32	111	97	84	73	68	64	61	56	53	51	49	46	44	43	41	40	39	38	37	35	33	32
33	114	100	87	76	70	66	63	58	55	52	50	48	46	44	43	41	41	40	38	37	35	33
34	118	103	89	78	72	68	65	60	56	54	52	49	47	45	44	43	42	41	39	38	36	34
35	121	106	92	80	74	70	67	61	58	56	54	51	48	47	45	44	43	42	41	39	37	35
36	125	109	95	82	76	72	69	63	60	57	55	52	50	48	46	45	44	43	42	40	38	36
37	128	112	97	85	78	74	70	65	61	59	57	53	51	49	48	48	45	44	43	41	39	37
38	132	115	100	87	80	76	72	67	63	60	58	55	52	51	49	48	47	46	44	42	40	38
39	135	118	102	89	82	78	74	69	65	62	60	56	54	52	50	49	48	47	45	43	41	39
40	139	121	105	92	84	80	76	70	66	63	61	58	55	53	52	50	49	48	46	44	42	40
41	142	124	108	94	87	82	78	72	68	65	63	59	57	55	53	52	50	49	48	45	43	41
42	146	127	110	96	89	84	80	74	70	67	64	61	58	56	54	53	52	50	49	47	44	42
43	149	130	113	98	91	86	82	76	71	68	66	62	59	57	56	54	53	52	50	48	45	43
44	153	133	116	101	93	88	84	77	73	70	67	64	61	59	57	55	54	53	51	49	46	44
45	156	136	118	103	95	90	86	79	75	71	69	65	62	60	58	57	55	54	52	50	47	45
46	160	139	121	105	97	92	88	81	76	73	70	66	64	61	59	58	56	55	53	51	48	46
47	163	142	124	108	99	94	90	83	78	75	72	68	65	63	61	59	58	56	54	52	49	47

[a] Rounded up to the nearest whole number.

Table 14 — Elongation values[a] on 50 mm corresponding to those obtained on $5{,}65\sqrt{S_0}$ gauge length

Actual elongation (%) on $5{,}65\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 50 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	6	7	8	9	9	10	11	11	12	13	13	14	14	15	16	16	16	17	17	18	19	20
11	6	7	8	10	10	11	12	13	13	14	14	15	16	17	17	18	18	18	19	20	21	22
12	7	8	9	10	11	12	13	14	14	15	16	17	17	18	19	19	20	20	21	22	23	24
13	8	9	10	11	12	13	14	15	16	16	17	18	19	20	20	21	21	22	22	23	25	26
14	8	9	11	12	13	14	15	16	17	18	18	19	20	21	22	22	23	23	24	25	27	28
15	9	10	11	13	14	15	16	17	18	19	20	21	22	23	23	24	24	25	26	27	29	30
16	9	11	12	14	15	16	17	18	19	20	21	22	23	24	25	25	26	27	28	29	31	32
17	10	11	13	15	16	17	18	19	21	21	22	24	25	26	26	27	28	28	29	31	33	34
18	10	12	14	16	17	18	19	21	22	23	24	25	26	27	28	29	29	30	31	33	34	36
19	11	13	14	17	18	19	20	22	23	24	25	26	28	29	29	30	31	32	33	34	36	38
20	12	13	15	17	19	20	21	23	24	25	26	28	29	30	31	32	33	33	35	36	38	40
21	12	14	16	18	20	21	22	24	25	27	27	29	30	32	33	33	34	35	36	38	40	42
22	13	15	17	19	21	22	23	25	27	28	29	30	32	33	34	35	36	37	38	40	42	44
23	13	15	18	20	22	23	24	26	28	29	30	32	33	35	36	37	37	38	40	42	44	46
24	14	16	18	21	23	24	25	27	29	30	31	33	35	36	37	38	39	40	41	43	46	48
25	14	17	19	22	24	25	26	28	30	32	33	35	36	38	39	40	41	42	43	45	48	50
26	15	17	20	23	25	26	27	30	31	33	34	36	38	39	40	41	42	43	45	47	50	52
27	16	18	21	24	26	27	28	31	33	34	35	37	39	41	42	43	44	45	47	49	52	54
28	16	19	21	24	27	28	29	32	34	35	37	39	41	42	43	45	46	47	48	51	54	56
29	17	19	22	25	28	29	30	33	35	37	38	40	42	44	45	46	47	48	50	52	55	58
30	17	20	23	26	28	30	32	34	36	38	39	42	43	45	47	48	49	50	52	54	57	60
31	18	21	24	27	29	31	33	35	37	39	41	43	45	47	48	49	51	52	54	56	59	62
32	18	21	24	28	30	32	34	36	39	40	42	44	46	48	50	51	52	53	55	58	61	64
33	19	22	25	29	31	33	35	38	40	42	43	46	48	50	51	53	54	55	57	60	63	66
34	20	23	26	30	32	34	36	39	41	43	44	47	49	51	53	54	55	57	59	61	65	68
35	20	23	27	31	33	35	37	40	42	44	46	49	51	53	54	56	57	58	60	63	67	70
36	21	24	27	31	34	36	38	41	43	45	47	50	52	54	56	57	59	60	62	65	69	72
37	21	25	28	32	35	37	39	42	45	47	48	51	54	56	57	59	60	62	64	67	71	74
38	22	25	29	33	36	38	40	43	46	48	50	53	55	57	59	61	62	63	66	69	73	76
39	23	26	30	34	37	39	41	44	47	49	51	54	57	59	60	62	64	65	67	70	75	78
40	23	27	30	35	38	40	42	46	48	50	52	55	58	60	62	64	65	67	69	72	77	80
41	24	27	31	36	39	41	43	47	49	52	54	57	59	62	64	65	67	68	71	74	78	82
42	24	28	32	37	40	42	44	48	51	53	55	58	61	63	65	67	68	70	73	76	80	84
43	25	29	33	38	41	43	45	49	52	54	56	60	62	65	67	68	70	72	74	78	82	86
44	25	29	34	38	42	44	46	50	53	56	58	61	64	66	68	70	72	73	76	79	84	88
45	25	30	34	39	43	45	47	51	54	57	59	62	65	68	70	72	73	75	78	81	86	90
46	27	30	35	40	44	46	48	52	56	58	60	64	67	69	71	73	75	77	79	83	88	92
47	27	31	36	41	45	47	49	54	57	59	62	65	68	71	73	75	77	78	81	85	90	94

[a] Rounded up to the nearest whole number.

Table 15 — Elongation values[a] on 80 mm corresponding to those obtained on $5{,}65\sqrt{S_0}$ gauge length

Actual elongation (%) on $5{,}65\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 80 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	5	5	6	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	14	15	16	17
11	5	6	7	8	9	9	10	10	11	12	12	13	13	14	14	15	15	15	16	16	17	18
12	6	7	8	9	9	10	10	11	12	13	13	14	14	15	15	16	16	17	17	18	19	20
13	6	7	8	9	10	11	11	12	13	14	14	15	16	16	17	17	18	18	19	19	21	22
14	7	8	9	10	11	12	12	13	14	15	15	16	17	17	18	18	19	19	20	21	22	23
15	7	8	9	11	12	12	13	14	15	16	16	17	18	19	19	20	20	21	21	22	24	25
16	8	9	10	12	13	13	14	15	16	17	17	18	19	20	21	21	22	22	23	24	25	27
17	8	9	11	12	13	14	15	16	17	18	18	20	20	21	22	22	23	23	24	25	27	28
18	9	10	11	13	14	15	16	17	18	19	20	21	22	22	23	24	24	25	26	27	29	30
19	9	10	12	14	15	16	17	18	19	20	21	22	23	24	24	25	26	26	27	28	30	31
20	10	11	13	14	16	17	17	19	20	21	22	23	24	25	26	26	27	28	29	30	32	33
21	10	12	13	15	17	17	18	20	21	22	23	24	25	26	27	28	28	29	30	31	33	35
22	11	12	14	16	17	18	19	21	22	23	24	25	26	27	28	29	30	30	31	33	35	36
23	11	13	15	17	18	19	20	22	23	24	25	26	28	29	30	30	31	32	33	34	36	38
24	11	13	15	17	19	20	21	23	24	25	26	28	29	30	31	32	32	33	34	36	38	40
25	12	14	16	18	20	21	22	24	25	26	27	29	30	31	32	33	34	34	36	37	40	41
26	12	14	16	19	20	22	23	25	26	27	28	30	31	32	33	34	35	36	37	39	41	43
27	13	15	17	20	21	22	24	25	27	28	29	31	32	34	35	36	36	37	39	40	43	45
28	13	15	18	20	22	23	24	26	28	29	30	32	34	35	36	37	38	39	40	42	44	46
29	14	16	18	21	23	24	25	27	29	30	31	33	35	36	37	38	39	40	41	43	46	48
30	14	16	19	22	24	25	26	28	30	31	34	36	37	39	40	41	41	43	45	48	50	34
31	15	17	20	22	24	26	27	29	31	32	36	37	39	40	41	42	43	44	46	49	51	36
32	15	18	20	23	25	27	28	30	32	33	37	38	40	41	42	43	44	46	48	51	53	37
33	16	18	21	24	26	27	29	31	33	35	38	40	41	42	44	45	46	47	49	52	55	38
34	16	19	21	25	27	28	30	32	34	36	39	41	42	44	45	46	47	49	51	54	56	39
35	17	19	22	25	28	29	30	33	35	37	38	40	42	44	45	46	47	48	50	52	55	58
36	17	20	23	26	28	30	31	34	36	38	39	41	43	45	46	48	49	50	52	54	57	60
37	18	20	23	27	29	31	32	35	37	39	40	43	44	46	48	49	50	51	53	55	59	61
38	18	21	24	28	30	32	33	36	38	40	41	44	46	47	49	50	51	52	54	57	60	63
39	19	21	25	28	31	32	34	37	39	41	42	45	47	49	50	51	53	54	56	58	62	65
40	19	22	25	29	31	33	35	38	40	42	43	46	48	50	51	53	54	55	57	60	63	66
41	20	23	26	30	32	34	36	39	41	43	44	47	49	51	53	54	55	57	59	61	65	68
42	20	23	27	30	33	35	37	40	42	44	46	48	50	52	54	55	57	58	60	63	67	70
43	21	24	27	31	34	36	37	41	43	45	47	49	52	54	55	57	58	59	62	64	68	71
44	21	24	28	32	35	37	38	42	44	46	48	51	53	55	57	58	59	61	63	66	70	73
45	22	25	28	33	35	37	39	42	45	47	49	52	54	56	58	59	61	62	64	67	71	75
46	22	25	29	33	36	38	40	43	46	48	50	53	55	57	59	61	62	63	66	69	73	76
47	22	26	30	34	37	39	41	44	47	49	51	54	56	59	60	62	63	65	67	70	74	78

[a] Rounded up to the nearest whole number.

Table 16 — Elongation values[a] on 100 mm corresponding to those obtained on $5{,}65\sqrt{S_0}$ gauge length

Actual elongation (%) on $5{,}65\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 100 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	4	5	6	7	7	8	8	9	9	10	10	11	11	11	12	12	12	13	13	14	14	15
11	5	6	6	7	8	8	9	9	10	11	11	12	12	13	13	13	14	14	14	15	16	17
12	5	6	7	8	9	9	10	10	11	11	12	13	13	14	14	14	15	15	16	16	17	18
13	6	7	8	9	9	10	10	11	12	12	13	14	14	15	15	16	16	16	17	18	19	20
14	6	7	8	9	10	11	11	12	13	13	14	15	15	16	16	17	17	18	18	19	20	21
15	7	8	9	10	11	11	12	13	14	14	15	16	16	17	18	18	19	19	20	21	22	23
16	7	8	9	11	12	12	13	14	15	15	16	17	18	18	19	19	20	20	21	22	23	24
17	7	9	10	11	12	13	14	15	16	16	17	18	19	19	20	21	21	21	22	23	25	26
18	8	9	10	12	13	14	14	16	16	17	18	19	20	21	21	22	22	23	24	25	26	27
19	8	10	11	13	14	14	15	16	17	18	19	20	21	22	22	23	23	24	25	26	28	29
20	9	10	12	13	14	15	16	17	18	19	20	21	22	23	24	24	25	25	26	27	29	30
21	9	11	12	14	15	16	17	18	19	20	21	22	23	24	25	25	26	27	27	29	30	32
22	10	11	13	15	16	17	18	19	20	21	22	23	24	25	26	27	27	28	29	30	32	33
23	10	12	13	15	17	18	18	20	21	22	23	24	25	26	27	28	28	29	30	31	33	35
24	10	12	14	16	17	18	19	21	22	23	24	25	26	27	28	29	30	30	31	33	35	36
25	11	13	14	17	18	19	20	22	23	24	25	26	27	28	29	30	31	32	33	34	36	38
26	11	13	15	17	19	20	21	22	24	25	26	27	29	30	31	31	32	33	34	36	38	39
27	12	14	16	18	19	21	21	23	25	26	27	28	30	31	32	33	33	34	35	37	39	41
28	12	14	16	19	20	21	22	24	26	27	28	29	31	32	33	34	35	35	37	38	41	42
29	13	15	17	19	21	22	23	25	27	28	29	30	32	33	34	35	36	37	38	40	42	44
30	13	15	17	20	22	23	24	26	27	29	30	32	33	34	35	36	37	38	39	41	43	45
31	14	16	18	21	22	24	25	27	28	30	31	33	34	35	36	37	38	39	41	42	45	47
32	14	16	18	21	23	24	25	28	29	31	32	34	35	36	38	39	40	40	42	44	46	49
33	14	17	19	22	24	25	26	28	30	32	33	35	36	38	39	40	41	42	43	45	48	50
34	15	17	20	23	24	26	27	29	31	33	34	36	37	39	40	41	42	43	44	47	49	52
35	15	18	20	23	25	27	28	30	32	33	35	37	38	40	41	42	43	44	46	48	51	53
36	16	18	21	24	26	27	29	31	33	34	36	38	40	41	42	43	44	45	47	49	52	55
37	16	19	21	25	27	28	29	32	34	35	37	39	41	42	43	45	46	47	48	51	54	56
38	17	19	22	25	27	29	30	33	35	36	38	40	42	43	45	46	47	48	50	52	55	58
39	17	20	23	26	28	30	31	34	36	37	39	41	43	44	46	47	48	49	51	53	57	59
40	17	20	23	27	29	30	32	35	37	38	40	42	44	46	47	48	49	50	52	55	58	61
41	18	21	24	27	29	31	33	35	37	39	41	43	45	47	48	49	51	52	54	56	59	62
42	18	21	24	28	30	32	33	36	38	40	42	44	46	48	49	51	52	53	55	57	61	64
43	19	22	25	29	31	33	34	37	39	41	43	45	47	49	51	52	53	54	56	59	62	65
44	19	22	25	29	32	34	35	38	40	42	44	46	48	50	52	53	54	56	58	60	64	67
45	20	23	26	30	32	34	36	39	41	43	45	47	49	51	53	54	56	57	59	62	65	68
46	20	23	27	30	33	35	37	40	42	44	46	48	51	52	54	56	57	58	60	63	67	70
47	21	24	27	31	34	36	37	41	43	45	47	49	52	54	55	57	58	59	62	64	68	71

[a] Rounded up to the nearest whole number.

Table 17 — Elongation values[a] on 200 mm corresponding to those obtained on $5{,}65\sqrt{S_0}$ gauge length

Actual elongation (%) on $5{,}65\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 200 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	3	4	4	5	5	6	6	7	7	7	8	8	8	9	9	9	9	10	10	10	11	11
11	4	4	5	6	6	6	7	7	8	8	8	9	9	9	10	10	10	11	11	11	12	13
12	4	5	5	6	7	7	7	8	8	9	9	10	10	10	11	11	11	11	12	12	13	14
13	4	5	6	7	7	8	8	9	9	9	10	10	11	11	12	12	12	12	13	13	14	15
14	5	5	6	7	8	8	8	9	10	10	11	11	12	12	12	13	13	13	14	15	15	16
15	5	6	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	14	15	16	16	17
16	5	6	7	8	9	9	10	10	11	12	12	13	13	14	14	15	15	15	16	17	18	18
17	6	6	7	9	9	10	10	11	12	12	13	14	14	15	15	16	16	16	17	18	19	20
18	6	7	8	9	10	10	11	12	12	13	14	14	15	16	16	16	17	17	18	19	20	21
19	6	7	8	10	10	11	11	12	13	14	14	15	16	16	17	17	18	18	19	20	21	22
20	7	8	9	10	11	12	12	13	14	14	15	16	17	17	18	18	19	19	20	21	22	23
21	7	8	9	11	11	12	13	14	15	15	16	17	17	18	19	19	20	20	21	22	23	24
22	7	8	10	11	12	13	13	14	15	16	17	18	18	19	20	20	21	21	22	23	24	25
23	8	9	10	12	13	13	14	15	16	17	17	18	19	20	20	21	22	22	23	24	25	26
24	8	9	10	12	13	14	14	16	17	17	18	19	20	21	21	22	22	23	24	25	26	28
25	8	10	11	13	14	14	15	16	17	18	19	20	21	22	22	23	23	24	25	26	27	29
26	9	10	11	13	14	15	16	17	18	19	20	21	22	22	23	24	24	25	26	27	29	30
27	9	10	12	14	15	16	16	18	19	20	20	21	22	23	24	25	25	26	27	28	30	31
28	9	11	12	14	15	16	17	18	19	20	21	22	23	24	25	26	26	27	28	29	31	32
29	10	11	13	15	16	17	17	19	20	21	22	23	24	25	26	27	27	28	29	30	32	33
30	10	11	13	15	16	17	18	20	21	22	23	24	25	26	27	27	28	29	30	31	33	34
31	10	12	14	16	17	18	19	20	21	22	23	25	26	27	28	28	29	30	31	32	34	36
32	11	12	14	16	17	18	19	21	22	23	24	25	27	28	28	29	30	31	32	33	35	37
33	11	13	14	17	18	19	20	22	23	24	25	26	27	28	29	30	31	32	33	34	36	38
34	11	13	15	17	19	20	21	22	24	25	26	27	28	29	30	31	32	33	34	35	37	39
35	12	13	15	18	19	20	21	23	24	25	26	28	29	30	31	32	33	33	35	36	38	40
36	12	14	16	18	20	21	22	24	25	26	27	29	30	31	32	33	34	34	36	37	40	41
37	12	14	16	19	20	21	22	24	26	27	28	29	31	32	33	34	35	35	37	38	41	43
38	13	14	17	19	21	22	23	25	26	28	29	30	32	33	34	35	36	36	38	39	42	44
39	13	15	17	20	21	23	24	26	27	28	29	31	32	34	35	36	37	37	39	40	43	45
40	13	15	17	20	22	23	24	26	28	29	30	32	33	35	36	37	37	38	40	41	44	46
41	14	16	18	21	22	24	25	27	28	30	31	33	34	35	37	37	38	39	41	43	45	47
42	14	16	18	21	23	24	25	27	29	30	32	33	35	36	37	38	39	40	42	44	46	48
43	14	16	19	22	23	25	26	28	30	31	32	34	36	37	38	39	40	41	43	45	47	49
44	15	17	19	22	24	25	27	29	30	32	33	35	37	38	39	40	41	42	44	46	48	51
45	15	17	20	23	25	26	27	29	31	33	34	36	37	39	40	41	42	43	45	47	49	52
46	15	18	20	23	25	27	28	30	32	33	35	37	38	40	41	42	43	44	46	48	51	53
47	16	18	21	24	26	27	28	31	33	34	35	37	39	41	42	43	44	45	47	49	52	54

[a] Rounded up to the nearest whole number.

Table 18 — Elongation values[a] on 50 mm corresponding to those obtained on $4\sqrt{S_0}$ gauge length

Actual elongation (%) on $4\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 50 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	5	6	7	8	8	9	9	10	10	11	11	12	13	13	13	14	14	14	15	16	17	17
11	6	6	7	8	9	10	10	11	12	12	13	13	14	14	15	15	16	16	17	17	18	19
12	6	7	8	9	10	10	11	12	13	13	14	14	15	16	16	17	17	17	18	19	20	21
13	7	7	9	10	11	11	12	13	14	14	15	16	16	17	18	18	18	19	20	20	22	23
14	7	8	9	11	12	12	13	14	15	15	16	17	18	18	19	19	20	20	21	22	23	24
15	8	9	10	11	12	13	14	15	16	16	17	18	19	20	20	21	21	22	23	24	25	26
16	8	9	11	12	13	14	15	16	17	18	18	19	20	21	22	22	23	23	24	25	27	28
17	9	10	11	13	14	15	16	17	18	19	19	21	21	22	23	24	24	25	26	27	28	30
18	9	10	12	14	15	16	16	18	19	20	20	22	23	24	24	25	26	26	27	28	30	31
19	10	11	13	14	16	17	17	19	20	21	22	23	24	25	26	26	27	28	29	30	32	33
20	10	12	13	15	17	17	18	20	21	22	23	24	25	26	27	28	28	29	30	31	33	35
21	11	12	14	16	17	18	19	21	22	23	24	25	26	27	28	29	30	30	32	33	35	37
22	11	13	15	17	18	19	20	22	23	24	25	27	28	29	30	30	31	32	33	35	37	38
23	12	13	15	18	19	20	21	23	24	25	26	28	29	30	31	32	33	33	35	36	38	40
24	12	14	16	18	20	21	22	24	25	26	27	29	30	31	32	33	34	35	36	38	40	42
25	13	14	17	19	21	22	23	25	26	27	28	30	32	33	34	35	35	36	38	39	42	44
26	13	15	17	20	21	23	24	26	27	29	30	31	33	34	35	36	37	38	39	41	43	45
27	14	16	18	21	22	24	25	27	28	30	31	33	34	35	36	37	38	39	41	42	45	47
28	14	16	19	21	23	24	26	28	29	31	32	34	35	37	38	39	40	41	42	44	47	49
29	15	17	19	22	24	25	27	29	30	32	33	35	37	38	39	40	41	42	44	46	48	50
30	15	17	20	23	25	26	27	30	31	33	34	36	38	39	40	42	43	43	45	47	50	52
31	16	18	21	24	26	27	28	31	33	34	35	37	39	41	42	43	44	45	47	49	52	54
32	16	18	21	24	26	28	29	32	34	35	36	39	40	42	43	44	45	46	48	50	53	56
33	17	19	22	25	27	29	30	33	35	36	38	40	42	43	45	46	47	48	50	52	55	57
34	17	20	23	26	28	30	31	34	36	37	39	41	43	44	46	47	48	49	51	53	57	59
35	18	20	23	27	29	31	32	35	37	38	40	42	44	46	47	48	50	51	53	55	58	61
36	18	21	24	27	30	31	33	36	38	40	41	43	45	47	49	50	51	52	54	57	60	63
37	19	21	25	28	31	32	34	37	39	41	42	45	47	48	50	51	52	54	56	58	62	64
38	19	22	25	29	31	33	35	38	40	42	43	46	48	50	51	53	54	55	57	60	63	66
39	20	22	26	30	32	34	36	39	41	43	44	47	49	51	53	54	55	56	59	61	65	68
40	20	23	26	30	33	35	37	40	42	44	46	48	50	52	54	55	57	58	60	63	67	70
41	21	24	27	31	34	36	37	41	43	45	47	49	52	54	55	57	58	59	62	64	68	71
42	21	24	28	32	35	37	38	42	44	46	48	51	53	55	57	58	60	61	63	66	70	73
43	22	25	28	33	35	38	39	43	45	47	49	52	54	56	58	60	61	62	65	68	72	75
44	22	25	29	33	36	38	40	44	46	48	50	53	55	58	59	61	62	64	66	69	73	77
45	23	26	30	34	37	39	41	45	47	49	51	54	57	59	61	62	64	65	68	71	75	78
46	23	27	30	35	38	40	42	46	48	51	52	55	58	60	62	64	65	67	69	72	77	80
47	24	27	31	36	39	41	43	47	49	52	54	57	59	61	63	65	67	68	71	74	78	82

[a] Rounded up to the nearest whole number.

Table 19 — Elongation values[a] on 80 mm corresponding to those obtained on $4\sqrt{S_0}$ gauge length

Actual elongation (%) on $4\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 80 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	4	5	5	6	7	7	8	8	9	9	9	10	10	11	11	11	12	12	12	13	14	14
11	5	5	6	7	8	8	8	9	10	10	10	11	11	12	12	13	13	13	14	14	15	16
12	5	6	7	8	8	9	9	10	10	11	11	12	13	13	13	14	14	14	15	16	17	17
13	5	6	7	8	9	9	10	11	11	12	12	13	14	14	15	15	15	16	16	17	18	19
14	6	7	8	9	10	10	11	11	12	13	13	14	15	15	16	16	16	17	17	18	19	20
15	6	7	8	9	10	11	11	12	13	14	14	15	16	16	17	17	18	18	19	20	21	22
16	7	8	9	10	11	12	12	13	14	15	15	16	17	17	18	18	19	19	20	21	22	23
17	7	8	9	11	12	12	13	14	15	15	16	17	18	18	19	20	20	20	21	22	23	25
18	7	9	10	11	12	13	14	15	16	16	17	18	19	20	20	21	21	22	22	23	25	26
19	8	9	10	12	13	14	14	16	17	17	18	19	20	21	21	22	22	23	24	25	26	27
20	8	10	11	13	14	14	15	16	17	18	19	20	21	22	22	23	24	24	25	26	28	29
21	9	10	12	13	14	15	16	17	18	19	20	21	22	23	23	24	25	25	26	27	29	30
22	9	11	12	14	15	16	17	18	19	20	21	22	23	24	25	25	26	26	27	29	30	32
23	10	11	13	15	16	17	17	19	20	21	22	23	24	25	26	26	27	28	29	30	32	33
24	10	11	13	15	16	17	18	20	21	22	23	24	25	26	27	28	28	29	30	31	33	35
25	10	12	14	16	17	18	19	21	22	23	24	25	26	27	28	29	29	30	31	33	34	36
26	11	12	14	16	18	19	20	21	23	24	25	26	27	28	29	30	31	31	32	34	36	37
27	11	13	15	17	18	20	22	22	23	25	25	27	28	29	30	31	32	32	34	35	37	39
28	12	13	15	18	19	20	21	23	24	25	26	28	29	30	31	32	33	34	35	36	39	40
29	12	14	16	18	20	21	22	24	25	26	27	29	30	31	32	33	34	35	36	38	40	42
30	12	14	16	19	21	22	23	25	26	27	28	30	31	33	34	34	35	36	37	39	41	43
31	13	15	17	20	21	22	23	25	27	28	29	31	32	34	35	36	36	37	39	40	43	45
32	13	15	18	20	22	23	24	26	28	29	30	32	33	35	36	37	38	38	40	42	44	46
33	14	16	18	21	23	24	25	27	29	30	31	33	34	36	37	38	39	40	41	43	46	48
34	14	16	19	21	23	25	26	28	30	31	32	34	36	37	38	39	40	41	42	44	47	49
35	15	17	19	22	24	25	27	29	30	32	33	35	37	38	39	40	41	42	44	46	48	50
36	15	17	20	23	25	26	27	30	31	33	34	36	38	39	40	41	42	43	45	47	50	52
37	15	18	20	23	25	27	28	30	32	34	35	37	38	40	41	42	43	44	46	48	51	53
38	16	18	21	24	26	28	29	31	33	35	36	38	40	41	42	44	45	46	47	49	52	55
39	16	19	21	25	27	28	30	32	34	35	37	39	41	42	44	45	46	47	49	51	54	56
40	17	19	22	25	27	29	30	33	35	36	38	40	42	43	45	46	47	48	50	52	55	58
41	17	20	23	26	28	30	31	34	36	37	39	41	43	44	46	47	48	49	51	53	57	59
42	17	20	23	26	29	30	32	34	37	38	40	42	44	46	47	48	49	50	52	55	58	61
43	18	21	24	27	29	31	33	35	37	39	41	43	45	47	48	49	51	52	54	56	59	62
44	18	21	24	28	30	32	33	36	38	40	42	44	46	48	49	51	52	53	55	57	61	63
45	19	22	25	28	31	33	34	37	39	41	42	45	47	49	50	52	53	54	56	59	62	65
46	19	22	25	29	31	33	35	38	40	42	43	46	48	50	51	53	54	55	57	60	63	66
47	20	22	26	30	32	34	36	39	41	43	44	47	49	51	53	54	55	56	59	61	65	68

[a] Rounded up to the nearest whole number.

Table 20 — Elongation values[a] on 100 mm corresponding to those obtained on $4\sqrt{S_0}$ gauge length

Actual elongation (%) on $4\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 100 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2 500
10	4	4	5	6	6	7	7	8	8	8	9	9	10	10	10	10	11	11	11	12	13	15
11	4	5	6	6	7	7	8	8	9	9	9	10	11	11	11	12	12	12	13	13	14	15
12	5	5	6	7	8	8	8	9	10	10	10	11	11	12	12	13	13	13	14	14	15	16
13	5	6	7	7	8	9	9	10	10	11	11	12	12	13	13	14	14	14	15	15	16	17
14	5	6	7	8	9	9	10	11	11	12	12	13	13	14	14	15	15	15	16	17	18	18
15	6	7	8	9	9	10	10	11	12	12	13	14	14	15	15	16	16	16	17	18	19	20
16	6	7	8	9	10	11	11	12	13	13	14	15	15	16	16	17	17	18	18	19	20	21
17	6	7	9	10	11	11	12	13	14	14	15	16	16	17	17	18	18	19	19	20	21	22
18	7	8	9	10	11	12	12	14	14	15	16	16	17	18	18	19	19	20	20	21	23	24
19	7	8	10	11	12	13	13	14	15	16	16	17	18	19	19	20	20	21	22	23	24	25
20	8	9	10	12	13	13	14	15	16	17	17	18	19	20	20	21	21	22	23	24	25	26
21	8	9	11	12	13	14	15	16	17	17	18	19	20	21	21	22	23	23	24	25	26	28
22	8	10	11	13	14	15	15	17	18	18	19	20	21	22	22	23	24	24	25	26	28	29
23	9	10	12	13	14	15	16	17	18	19	20	21	22	23	24	24	25	25	26	27	29	30
24	9	10	12	14	15	16	17	18	19	20	21	22	23	24	25	25	26	26	27	29	30	32
25	10	11	13	14	16	17	17	19	20	21	22	23	24	25	26	26	27	27	28	30	32	33
26	10	11	13	15	16	17	17	18	20	21	22	24	25	26	27	27	28	29	30	31	33	34
27	10	12	14	16	17	18	19	20	21	22	23	25	26	27	28	28	29	30	31	32	34	36
28	11	12	14	16	18	19	19	21	22	23	24	26	27	28	29	29	30	31	32	33	35	37
29	11	13	15	17	18	19	20	22	23	24	25	27	28	29	30	30	31	32	33	35	37	38
30	11	13	15	17	19	20	21	23	24	25	26	27	29	30	31	31	32	33	34	36	38	40
31	12	14	16	18	19	21	21	23	25	26	27	28	30	31	32	33	33	34	35	37	39	41
32	12	14	16	18	20	21	22	24	25	27	28	29	31	32	33	34	34	35	36	38	40	42
33	13	14	17	19	21	22	23	25	26	27	28	30	32	33	34	35	35	36	38	39	42	44
34	13	15	17	20	21	23	24	26	27	28	29	31	32	34	35	36	37	37	39	40	43	45
35	13	15	18	20	22	23	24	26	28	29	30	32	33	35	36	37	38	38	40	42	44	46
36	14	16	18	21	23	24	25	27	29	30	31	33	34	36	37	38	39	40	41	43	45	47
37	14	16	19	21	23	25	26	28	29	31	32	34	35	37	38	39	40	41	42	44	47	49
38	14	17	19	22	24	25	26	29	30	32	33	35	36	38	39	40	41	42	43	45	48	50
39	15	17	20	22	24	26	27	29	31	32	34	36	37	39	40	41	42	43	44	46	49	51
40	15	17	20	23	25	26	28	30	32	33	35	37	38	40	41	42	43	44	46	48	50	53
41	16	18	21	24	26	27	28	31	33	34	35	37	39	41	42	43	44	45	47	49	52	54
42	16	18	21	24	26	28	29	32	33	35	36	38	40	42	43	44	45	46	48	50	53	55
43	16	19	22	25	27	28	30	32	34	36	37	39	41	43	44	45	46	47	49	51	54	57
44	17	19	22	25	28	29	30	33	35	37	38	40	42	44	45	46	47	48	50	52	55	58
45	17	20	23	26	28	30	31	34	36	37	39	41	43	45	46	47	48	49	51	54	57	59
46	18	20	23	27	29	30	32	35	37	38	40	42	44	46	47	48	49	51	52	55	58	61
47	18	21	24	27	29	31	33	35	37	39	41	43	45	47	48	49	51	52	54	56	59	62

[a] Rounded up to the nearest whole number.

Table 21 — Elongation values[a] on 200 mm corresponding to those obtained on $4\sqrt{S_0}$ gauge length

Actual elongation (%) on $4\sqrt{S_0}$ mm gauge length	Corresponding elongation (%) on 200 mm gauge length if cross-sectional area in square millimetres is:																					
	5	10	20	40	60	80	100	150	200	250	300	400	500	600	700	800	900	1 000	1 200	1 500	2 000	2500
10	3	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	8	8	9	9	10	10
11	3	4	4	5	5	6	6	6	7	7	7	8	8	8	9	9	9	9	9	10	11	11
12	3	4	5	5	6	6	6	7	7	8	8	8	9	9	9	10	10	10	10	11	11	12
13	4	4	5	6	6	7	7	7	8	8	9	9	9	10	10	10	11	11	11	12	12	13
14	4	5	5	6	7	7	7	8	8	9	9	10	10	11	11	11	11	12	12	13	13	14
15	4	5	6	7	7	8	8	9	9	9	10	10	11	11	12	12	12	12	13	14	14	15
16	5	5	6	7	8	8	8	9	10	10	10	11	12	12	12	13	13	13	14	14	15	16
17	5	6	6	7	8	9	9	10	10	11	11	12	12	13	13	14	14	14	15	15	16	17
18	5	6	7	8	9	9	9	10	11	11	12	12	13	14	14	14	15	15	16	16	17	18
19	5	6	7	8	9	10	10	11	11	12	12	13	14	14	15	15	15	16	16	17	18	19
20	6	7	8	9	9	10	10	11	12	13	13	14	14	15	15	16	16	17	17	18	19	20
21	6	7	8	9	10	11	11	12	13	13	14	15	15	16	16	17	17	17	18	19	20	21
22	6	7	8	10	10	11	12	13	13	14	14	15	16	17	17	18	18	18	19	20	21	22
23	7	8	9	10	11	12	12	13	14	15	15	16	17	17	18	18	19	19	20	21	22	23
24	7	8	9	10	11	12	13	14	14	15	16	17	17	18	19	19	20	20	21	22	23	24
25	7	8	10	11	12	13	13	14	15	16	16	17	18	19	19	20	20	21	22	23	24	25
26	7	9	10	11	12	13	14	15	16	16	17	18	19	20	20	21	21	22	22	23	25	26
27	8	9	10	12	13	14	14	15	16	17	18	19	20	20	21	21	22	22	23	24	26	27
28	8	9	11	12	13	14	15	16	17	18	18	19	20	21	22	22	23	23	24	25	27	28
29	8	10	11	13	14	15	15	17	17	18	19	20	21	22	22	23	24	24	25	26	28	29
30	9	10	11	13	14	15	16	17	18	19	20	21	22	23	23	24	24	25	26	27	29	30
31	9	10	12	14	15	16	16	18	19	20	20	21	22	23	24	25	25	26	27	28	30	31
32	9	11	12	14	15	16	17	18	19	20	21	22	23	24	25	25	26	27	28	29	31	32
33	10	11	13	14	16	17	17	19	20	21	22	23	24	25	26	26	27	27	28	30	32	33
34	10	11	13	15	16	17	18	19	21	21	22	24	25	26	26	27	28	28	29	31	32	34
35	10	12	13	15	17	18	18	20	21	22	23	24	25	26	27	28	29	29	30	32	33	35
36	10	12	14	16	17	18	19	20	22	23	24	25	26	27	28	29	29	30	31	32	34	36
37	11	12	14	16	18	19	19	21	22	23	24	26	27	28	29	29	30	31	32	33	35	37
38	11	13	14	17	18	19	20	22	23	24	25	26	28	29	29	30	31	32	33	34	36	38
39	11	13	15	17	18	20	20	22	24	25	26	27	28	29	30	31	32	32	34	35	37	39
40	12	13	15	17	19	20	21	23	24	25	26	28	29	30	31	32	33	33	35	36	38	40
41	12	14	16	18	19	21	22	23	25	26	27	28	30	31	32	33	33	34	35	37	39	41
42	12	14	16	18	20	21	22	24	25	26	27	29	30	32	33	33	34	35	36	38	40	42
43	12	14	16	19	20	22	23	24	26	27	28	30	31	32	33	34	35	36	37	39	41	43
44	13	15	17	19	21	22	23	25	27	28	29	30	32	33	34	35	36	37	38	40	42	44
45	13	15	17	20	21	23	24	26	27	28	29	31	33	34	35	36	37	37	39	41	43	45
46	13	15	18	20	22	23	24	26	28	29	30	32	33	35	36	37	37	38	40	42	44	46
47	14	16	18	21	22	24	25	27	28	30	31	33	34	35	36	37	38	39	41	42	45	47

a Rounded up to the nearest whole number.

10 Use of Figures

Figures 1 to 5 may be used as an alternative quick method to obtain elongation conversions.