British Standard

BRITISH STANDARD

BS EN ISO 4066:2000

Incorporating Corrigendum No.1

Construction drawings — Bar scheduling

The European Standard EN ISO 4066:1999 has the status of a British Standard

ICS 01.100.30; 77.140.15

National foreword

This British Standard is the English language version of EN ISO 4066:1999. It is identical with ISO 4066:1994. It supersedes parts of BS 4466:1989 which has been revised and renumbered and published as BS 8666:2000.

The UK participation in its preparation was entrusted by Technical Committee ISE/9, Steel for Concrete Reinforcement, to Subcommittee ISE/9/3, Bending and Scheduling of Concrete Reinforcement, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii and iii, a blank page, pages 1 to 7 and a back cover.

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Amendments issued since publication

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11097 Corrigendum No.1	September 2000	Correction to inside front cover

This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 April 2000

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 4066

July 1999

ICS 01.100.30

English version

Construction drawings - Bar scheduling (ISO 4066:1994)

Dessins de bâtiment et génie civil - Cahiers de ferraillage (ISO 4066:1994)

Zeichnungen für das Bauwesen - Stabliste (ISO 4066:1994)

This European Standard was approved by CEN on 1 July 1999.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of the International Standard from Technical Committee ISO/TC 10 "Technical drawings, product definition and related documentation" of the International Organization for Standardization (ISO) has been taken over as an European Standard by CEN/CS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 4066:1994 has been approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 4066

Second edition
1994-09-01

Construction drawings — Bar scheduling

Dessins de bâtiment et génie civil — Cahiers de ferraillage

Reference number
ISO 4066:1994(E)

Foreword

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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.

International Standard ISO 4066 was prepared by Technical Committee ISO/TC 10, *Technical drawings, product definition and related documentation*, Subcommittee SC 8, *Construction documentation*.

This second edition cancels and replaces the first edition (ISO 4066:1977), which has been technically revised.

Introduction

The purpose of this International Standard is to ensure uniformity of practice in the scheduling of steel bars for the reinforcement of concrete. To establish a clear and unambiguous system for scheduling, it is necessary to specify the method of indicating dimensions to be used and the order in which the information is given on the bar schedule.

As the use of preferred shapes is considered to be very advantageous both for simplifying design and manufacture and for the use of computers, the opportunity has been taken to include a list of preferred shapes and a coding system; the layout of the bar schedule is based on the use of preferred shapes.

Construction drawings — Bar scheduling

1 Scope

This International Standard establishes a system for the scheduling of reinforcing bars, and comprises

— the method of indicating dimensions;

— a coding system for bar shapes;

— a list of preferred shapes;

— the bar schedule.

This International Standard applies to all types of steel bar for the reinforcement of concrete. It does no apply to steel fabric and prestressing steel reinforcement.

2 Indication of bending dimensions

The bending dimensions shall be indicated as shown in figures 1 to 5.

Dimensions shall be outside dimensions, except for radii, and the standard radius of bend shall be the smallest radius permitted by national standards regulations for the size of bar scheduled.

If a national standard specifies different standard radii for different situations, the radius to be used shall be entered in the column e/R.

Except for shape codes 12, 13, 33, 67 and 77, all bends will be assumed to have standard radii. No dimension shall be zero.

The "free" dimensions shown in brackets shall be available to take up cumulative cutting and bending tolerances; this dimension need not be shown on schedules.

The total length (cutting length) shall be calculated on the basis of the appropriate bending dimensions with corrections for bends.

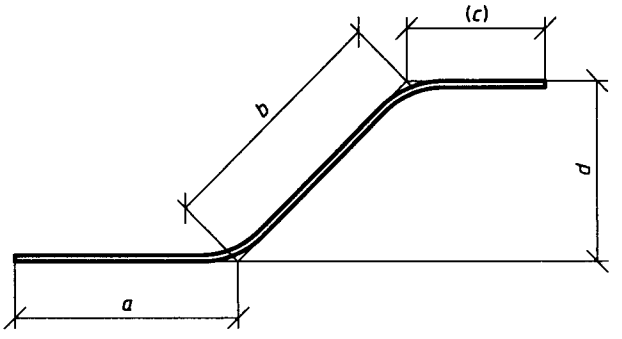


Figure 1 — Bending dimensions — Shape code 26

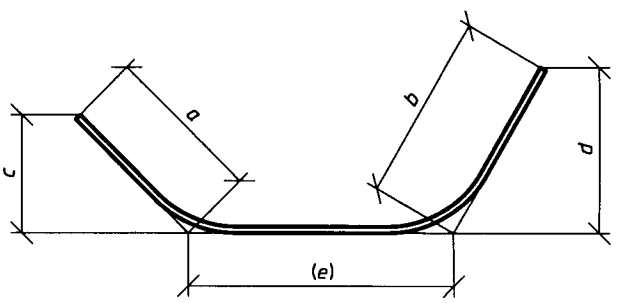


Figure 2 — Bending dimensions — Shape code 25

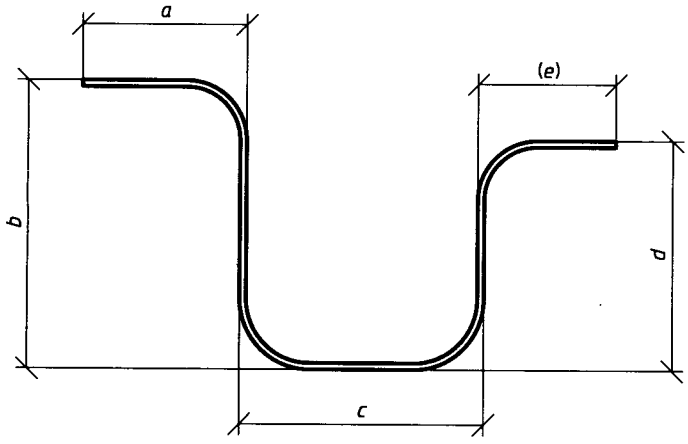


Figure 3 — Bending dimensions — Shape code 44

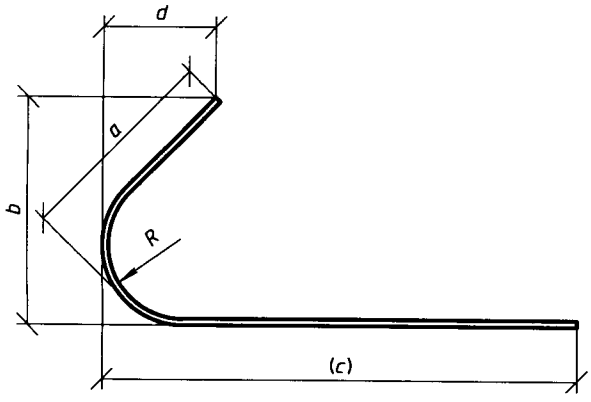


Figure 4 — Bending dimensions — Shape code 99 (non-standard)

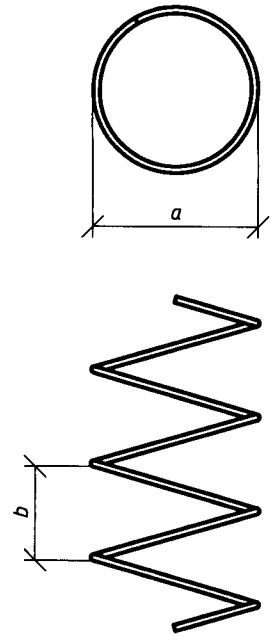


Figure 5 — Bending dimensions — Shape code 77

3 Coding system for bar shapes

The shape code number shall consist of two characters, as defined in table 1.

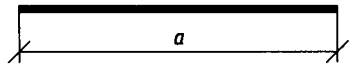
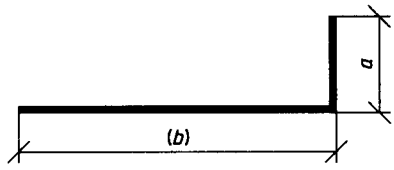
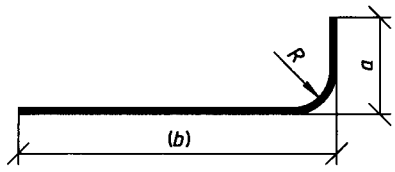
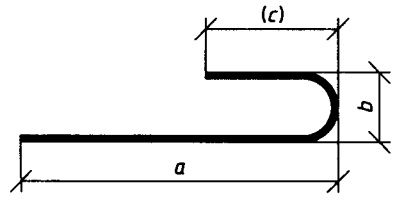
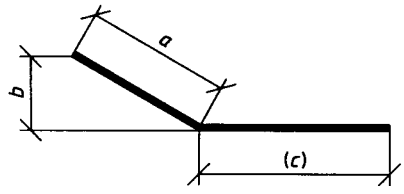
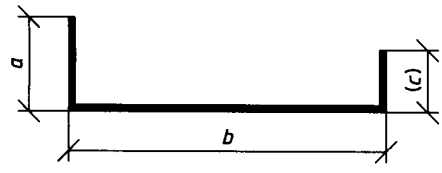
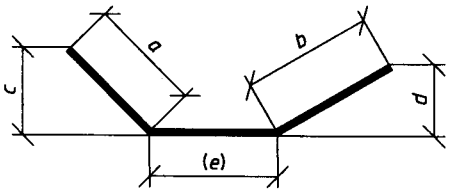
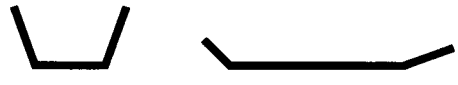
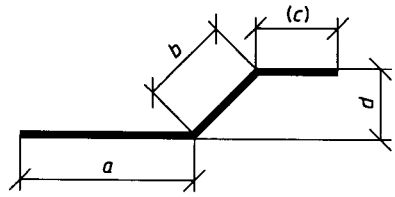
4 List of preferred shapes

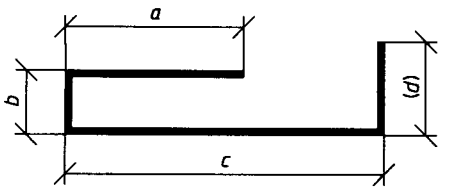
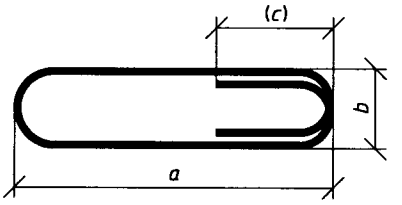
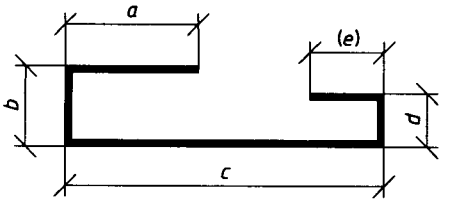
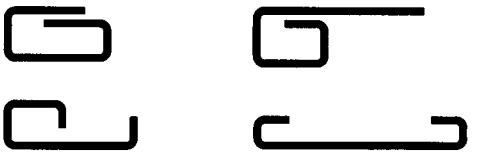
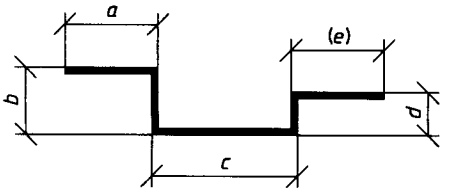
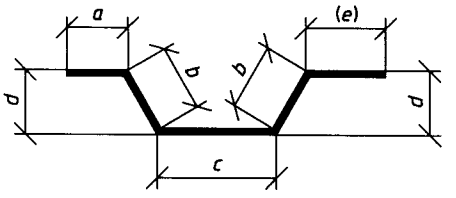
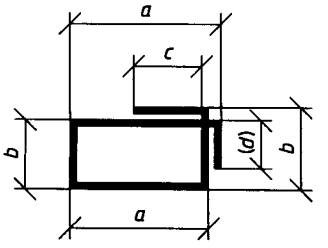
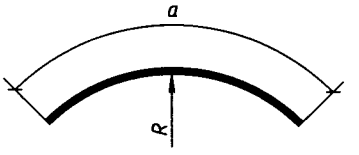
Preferred shapes for bars are listed in table 2. The letter symbols in table 2 refer to the dimensions which shall be given in the bar schedule (although the "free" dimension may be omitted).

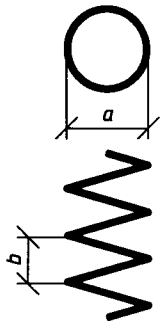
Table 1 — Code number composition

First character	Second character
0 — No bends (optional)	**0** — Straight bars (optional)
1 — 1 bend	**1** — 90° bend(s) of standard radius, all bent towards the same direction
2 — 2 bends	**2** — 90° bend(s) of non-standard radius, all bent towards the same direction
3 — 3 bends	**3** — 180° bend(s) of non-standard radius, all bent towards the same direction
4 — 4 bends	**4** — 90° bends of standard radius, not all bent towards the same direction
5 — 5 bends[1)]	**5** — Bends < 90°, all bent towards the same direction
6 — Arcs of circles	**6** — Bends < 90°, not all bent towards the same direction
7 — Helices	**7** — Arcs or helices
99 — Special non-standard shapes defined by a sketch. Shape code 99 shall be used for all non-standard shapes. Bending radii for shape 99 shall be assumed to be standard (r) unless specified otherwise (R) [2)].	
NOTE — This table explains the logic behind the numbering of the shapes in table 2. It is not to be used for creating codes for additional shapes.	
1) Shape code 51 is the only preferred shape permitted to have more than four bends. Five bends or more are undesirable and may be impractical within permitted tolerances but they must be drawn out in full and coded 99. 2) With the exception of shape codes 12 and 67 if a non-standard radius is required the shape code becomes 99 with R specified on the sketch.	

Table 2 — Preferred shapes

Shape code	Shape	Examples
00		
11		
12		
13		
15		
21		
25		
26		

Shape code	Shape	Examples
31		
33	Both ends semicircular 	
41		
44		
46		
51		
67		

Shape code	Shape	Examples
77	 *c*: number of complete turns	
99	All other shapes	

5 Bar schedule

The bar schedule is the document used to specify and identify reinforcing bars. The format specified in 5.1 incorporates the use of preferred shapes.

5.1 Schedule information

A bar schedule shall contain the following information in the sequence listed below:

a) member (identification of the structural member in which the bar is located);

b) bar mark (unique reference of the bar);

c) type of steel (a single letter will suffice if clearly defined, then columns for type of steel and size can be combined, e.g. B12);

d) size (nominal diameter) of bar, in millimetres;

e) length of each bar, in millimetres [cutting length, allowing for the gain at bends, calculated from the dimensions and radii given in k); see clause 2];

f) number of members;

g) number of bars in each member;

h) total number of bars [f) × g)];

i) total length [e) × h)], in millimetres (rounded to the nearest multiple of 25 mm);

j) shape code;

k) bending dimensions, in millimetres (rounded to the nearest multiple of 5 mm);

l) revision letter for member [a letter should be entered here, starting A, B, C, etc., whenever a line (or lines) is amended and the schedule re-issued. The same letter should be entered in 5.3 f)];

m) title block.

An example of a form of bar schedule is shown in table 3.

5.2 Special shapes

When special shapes are required, these shall be shown by a dimensioned sketch drawn over columns *a* to *e*|*R* (see table 3) and shall be designated as shape code 99.

5.3 Title block

The title block shall be placed below the schedule, and shall contain the following information:

a) name of the structural designer;

b) title of the project;

c) preparation date, by whom prepared, by whom checked;

d) drawing number;

e) bar schedule number;

f) revision letter and date of last revision;

g) a statement that the schedule has been prepared in accordance with the requirements of ISO 4066 (in or immediately below the title block).

Table 3 — Example of an ISO bar schedule

Dimensions in millimetres

Member	Bar mark	Type of steel	Size	Length of each bar	Number of members	Number of bars in each member	Total number	Total length	Shape code	Bending dimensions					Revision letter for member
										a	*b*	*c*	*d*	*e*/*R*	
First floor slabs	01	B	12	4 000	6	50	300	1 200 000	00	4 000					
Wall A	02	B	16	6 000	1	25	25	150 000	11	2 000					
Tank wall	03	B	20	12 000	1	100	100	1 200 000	67	12 000				9 000	
Beam 23	04	B	10	3 800	6	25	150	570 000	44	1 000	1 500	300	1 500		

A. B. CDE and PARTNERS 2 XY Street, London WIA Phone: 071-000-0000	Factory for X, Y, Z, etc.	Preparation date 1992-07-09	Drawing number 63	Bar schedule number 6301	Revision date
		Prepared by R.I.L.			Revision letter
		Checked by R.S.			
This schedule has been prepared in accordance with the requirements of ISO 4066.					

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