INTERNATIONAL STANDARD ISO 4066

Building and civil engineering drawings — Bar scheduling

Dessins de bâtiment et génie civil — Cahiers de ferraillage

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4066 was developed by Technical Committee ISO/TC 10, *Technical drawings*, and was circulated to the member bodies in August 1976.

It has been approved by the member bodies of the following countries :

Belgium	Italy	Turkey
Canada	Mexico	United Kingdom
Chile	Norway	U.S.S.R.
Denmark	Romania	Yugoslavia
France	Sweden	
India	Switzerland	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
Netherlands
South Africa, Rep. of

Building and civil engineering drawings — Bar scheduling

0 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.

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.

2 FIELD OF APPLICATION

This International Standard applies to all types of steel bar
for the reinforcement of concrete.

Steel fabric and prestressing steel reinforcement are
excluded.

3 METHODS OF INDICATING 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 or regulations.

The total length (cutting length) shall be calculated on the
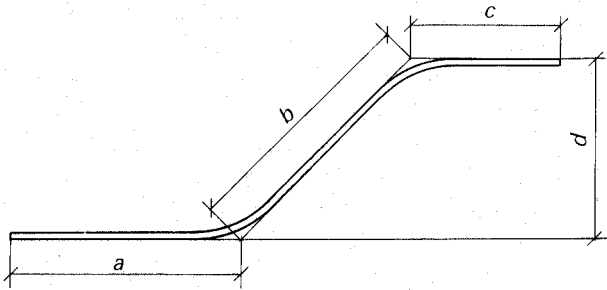basis of the appropriate bending dimensions with corrections
for bends and allowances for anchorages.
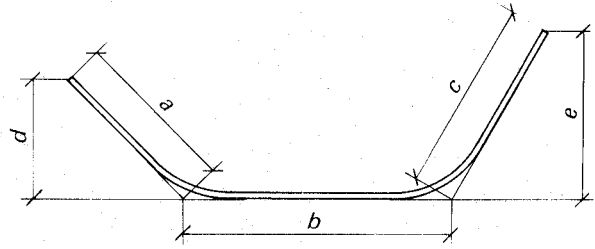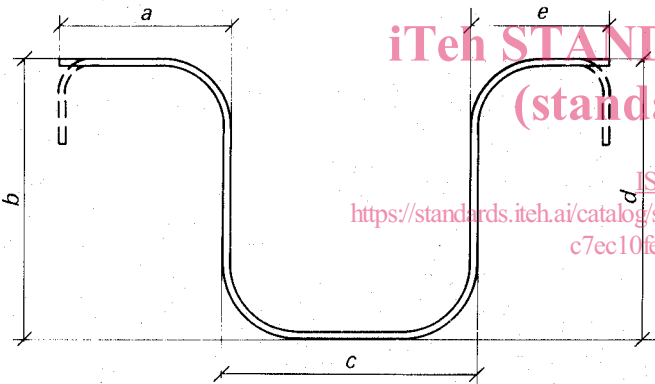
1

BENDING DIMENSIONS
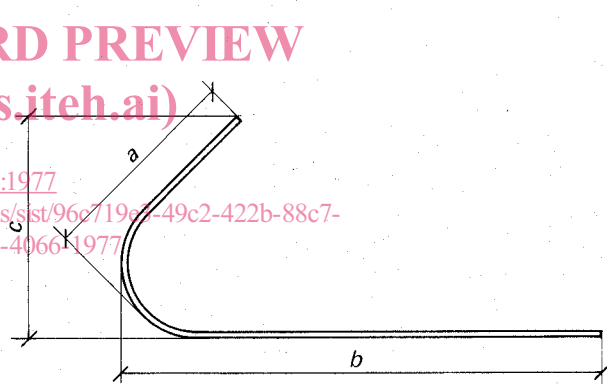
FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

a (final diameter)
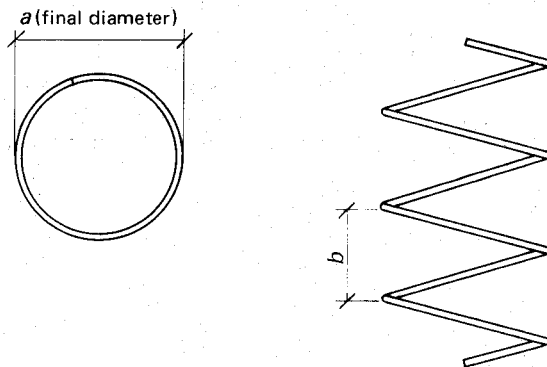
c : number of complete turns

FIGURE 5

4 CODING SYSTEM FOR BAR SHAPES

The shape code number consists of two or, if essential, three or four characters, as defined in table 1.

TABLE 1 — Code number composition

First character	Second character	Third character	Fourth character
0 — No bends (optional) **1** — 1 bend **2** — 2 bends **3** — 3 bends **4** 4 bends **5** — 5 bends **6** — Arcs of circles **7** — Helices	**0** — Straight bars (optional) **1** — 90° bend(s) of standard radius all bent in the same direction **2** — 90° bend(s) of non-standard radius, all bent in the same direction **3** — 180° bend(s) of non-standard radius, all bent in the same direction **4** — 90° bends of standard radius not all bent in the same direction **5** — Bends < 90°, all bent in the same direction **6** — Bends < 90°, not all bent in the same direction **7** — Arcs or helices	**0** — No end anchorage (optional) **1** — End anchorage at one end, as defined in national standards **2** — End anchorages at both ends, as defined in national standards	**S** — Where a national standard specifies a special radius of bend (for example stirrups, links) this shall be indicated by use of the character S.
81 to 89 — Shapes defined in national standards **99** — Special non-standard shapes defined by a sketch. It is recommended that code shapes 99 for all non-standard shapes be used. However, the numbers 91 to 99 are available for countries which require more than one number for special shapes.			

NOTE — This table explains the logic behind the numbering of the shapes in table 2. It is not to be used for making up codes for additional shapes.
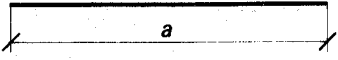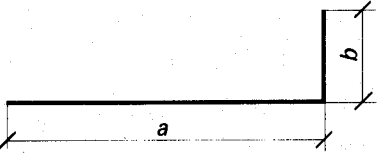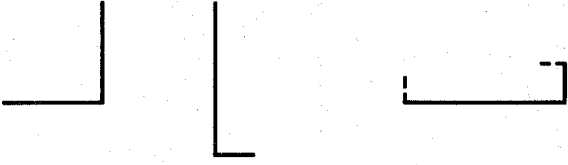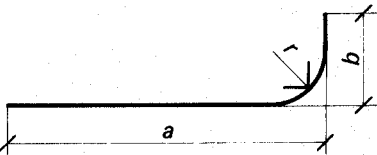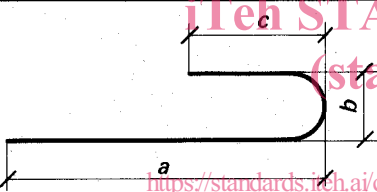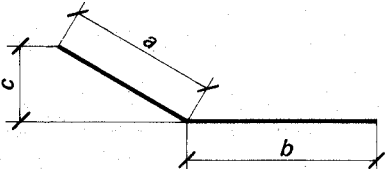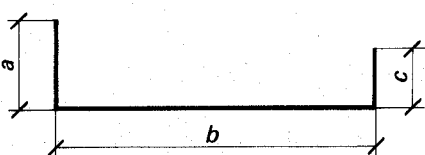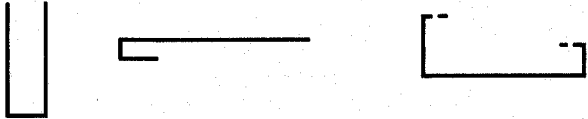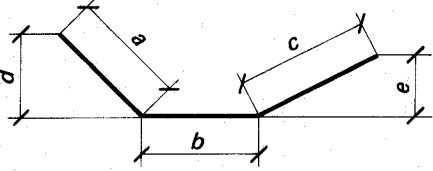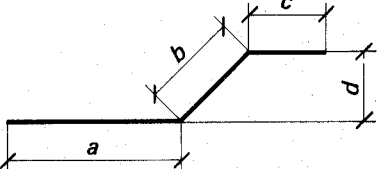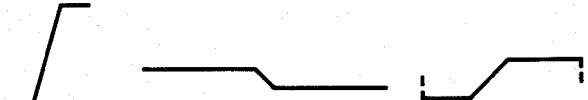
5 LIST OF PREFERRED SHAPES

When a third character is used, the direction of the end anchorages shall be as shown by the dotted lines in the examples in table 2.

It is recognized that in some countries hooks are used for end anchorages.

The letter symbols refer to the dimensions which shall be given in the bar schedule.

TABLE 2 — Preferred shapes

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

TABLE 2 (*concluded*)

Shape code	Shapes	Examples
31		
33		
41		
44		
46		
51		
67		
77	*c* : number of complete turns	

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ISO 4066:1977
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c7ec10fe1cef/iso-4066-1977

6 BAR SCHEDULE

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

6.1 Information content

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;

d) diameter of bar;

e) length of each bar [cutting length, allowing for loss or gain at bends, calculated from the dimensions and radii given in k); see clause 3];

f) number of members;

g) number of bars in each member;

h) total number of bars f) × g);

i) total length e) × h);

j) shape code (as defined in clause 5);

k) bending dimensions;

l) revision letter;

m) title block;

An example of a form of bar schedule is shown on page 7.

6.2 Special shapes

When special shapes are required, these shall be shown by a dimensioned sketch drawn in the space normally used for bending dimensions.

6.3 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) date prepared
prepared by . . .
checked by . . .

d) drawing number;

e) bar schedule reference;

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.

7 SUMMARY SHEET

If required, summary sheets may be used; separate sheets shall be used for each type of steel.

Example of ISO bar schedule — Dimensions in millimetres

Member	Bar mark	Type of steel	Diameter	Length of each bar	Number of members	Number of bars in each member	Total number	Total length	Shape code	Bending dimensions					Revision letter
										a	b	c	d	e/r	

A. B. CED and PARTNERS 2 X Y Street, London WIA Phone : 01-000-0000	[TITLE OF PROJECT]	Preparation date	Drawing number	Bar schedule reference	Revision date
		Prepared by			Revision letter
		Checked by			

This schedule has been prepared in accordance with the requirements of ISO 4066.