
British Standard Specification for
**Headforms for use in the testing
of protective helmets**

Fausse têtes à utiliser lors des essais de casques de protection — Spécifications

Prüfköpfe zur Prüfung von Schutzhelmen

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Foreword

This British Standard has been prepared under the direction of the Personal Safety Equipment Standards Committee, and is based upon the draft international standard ISO/DIS 6220-1983 'Headforms for use in the testing of protective helmets' published by the International Organization for Standardization (ISO).

The UK voted in favour of this draft international standard and made several minor technical comments, mainly corrections to the tables. These changes have been incorporated into this British Standard making it almost technically identical with the draft international standard.

The draft international standard did not receive sufficient support for subsequent publication as an international standard, as it was at variance with part of a related United Nations Economic Commission for Europe Regulation

(UN ECE Regulation 22/02 'Uniform provisions concerning the approval of protective helmets for drivers and passengers of motor cycles and mopeds'), a regulation which the UK did not adopt.

For ease of production it has been found convenient to reproduce the text of ISO/DIS 6220, amended to incorporate the differences outlined above. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following. The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Compliance with a British Standard does not of itself confer immunity from legal obligations.



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Specification for headforms for use in
the testing of protective helmets

Revised text

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March 1987

Clause 3.3.1 Above the reference plane

Delete the last sentence and substitute the following:

'Co-ordinates for level "O" also apply down to the basic plane,
 unless compliance with **3.3.2** is required.'

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March 1987

Table 1. Measurements for headform sizes related to figure 1

Against line L, in column y delete '104,5' and substitute '105,5'.

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Table 2. Polar co-ordinates of horizontal half-sections

For the table indicated in column 1 and for the height above reference plane given in column 2 and the angle given in column 3, delete the existing value and substitute the value given in column 4. For example, in table 2-B for the height above reference plane of 40 mm and an angle of 105°, delete '66,0' and substitute '68,0'.

1	2	3	4
Table number	Height above reference plane	Angle	Amended value
2-B	0	60	71,5
	40	105	68,0
	40	150	81,5
2-F	50	180	86,5
2-J	0	45	88,5
	60	45	78,0
	85	120	56,5
2-K	80	45	64,5
	90	135	56,0
2-L	50	15	92,0
	85	165	69,5
	85	180	69,5
2-M	40	150	97,0
	50	135	91,0
	50	150	94,0
	60	150	90,0
2-N	80	60	66,5
	85	15	68,0
	85	120	64,5
	90	15	60,5
	90	105	55,5
	90	120	59,0
2-O	60	45	86,5
	70	60	75,0
	80	60	67,0
	85	30	70,0
2-Q	85	15	75,5
	90	15	69,0

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Annex. Method of construction of wooden headforms

In line 6 after 'the final shaping' insert 'to a smoothly contoured curve'.

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Headforms for use in the testing of protective helmets

1 Scope

This British Standard specifies the materials, sizing and constructional details of headforms for use in the testing of protective helmets. Details of headform below the reference plane are included as an optional requirement.

2 Materials

The headforms shall be made of hardwood or metal or other suitable material, and shall exhibit no resonant frequencies below 3 000 Hz. Where a test method requires a specific material to be used this shall be stated in the appropriate standard.

3 Sizing

3.1 Size codes

The size codes used for headforms, related to the inside circumference of helmets and other measurements are listed in table 1. The circumference values refer to the internal circumference of the helmet measured at the headband level (AA') as illustrated in figure 1.

3.2 Basic data

The basic reference data for headforms are given in figure 2. Each datum level is quoted relative to the reference plane. The centre of gravity of the headform lies at point Z on the central vertical axis, 12,7 mm above the reference plane. Where a complete headform is specified (see 3.3.2) then the centre of gravity lies at 1 mm below the reference plane (see tables 3-A to 3-Q and figure 4).

3.3 Dimensions

Compliance with 3.3.2 is optional. If this option is not selected the following requirements shall be met.

- a) All headforms shall extend down at least to the basic plane.

- b) Headforms for testing road users' helmets shall extend down at least to line HH (see figure 1).

3.3.1 Above the reference plane

The headforms shall comply with the appropriate dimensions given in tables 2-A to 2-Q. The polar co-ordinates of the horizontal half-sections at each datum level referred to in tables 2-A to 2-Q are given in figure 3. Co-ordinates for level "O" also apply to the basic plane.

3.3.2 Below the reference plane

If a complete headform is required then it shall comply with the appropriate dimensions of table 3. The polar co-ordinates referred to in this table are illustrated in figures 4a) to 4c).

4 Construction

A recommended method of constructing wooden headforms is given in the annex.

5 Marking

All headforms shall be marked with

- a) the basic plane as illustrated in figure 2;
- b) the longitudinal and transverse planes through the vertical axis;

Headforms for testing vehicle users' helmets shall also be marked with

- c) the lines ACDEF and G₁-G₂ on both sides, as illustrated in figure 1;
- d) two points equispaced each side of point K on the basic plane to enable the horizontal requirements for peripheral vision to be checked;
- e) two points equispaced 33 mm each side of point K on the basic plane.

Dimensions in millimetres

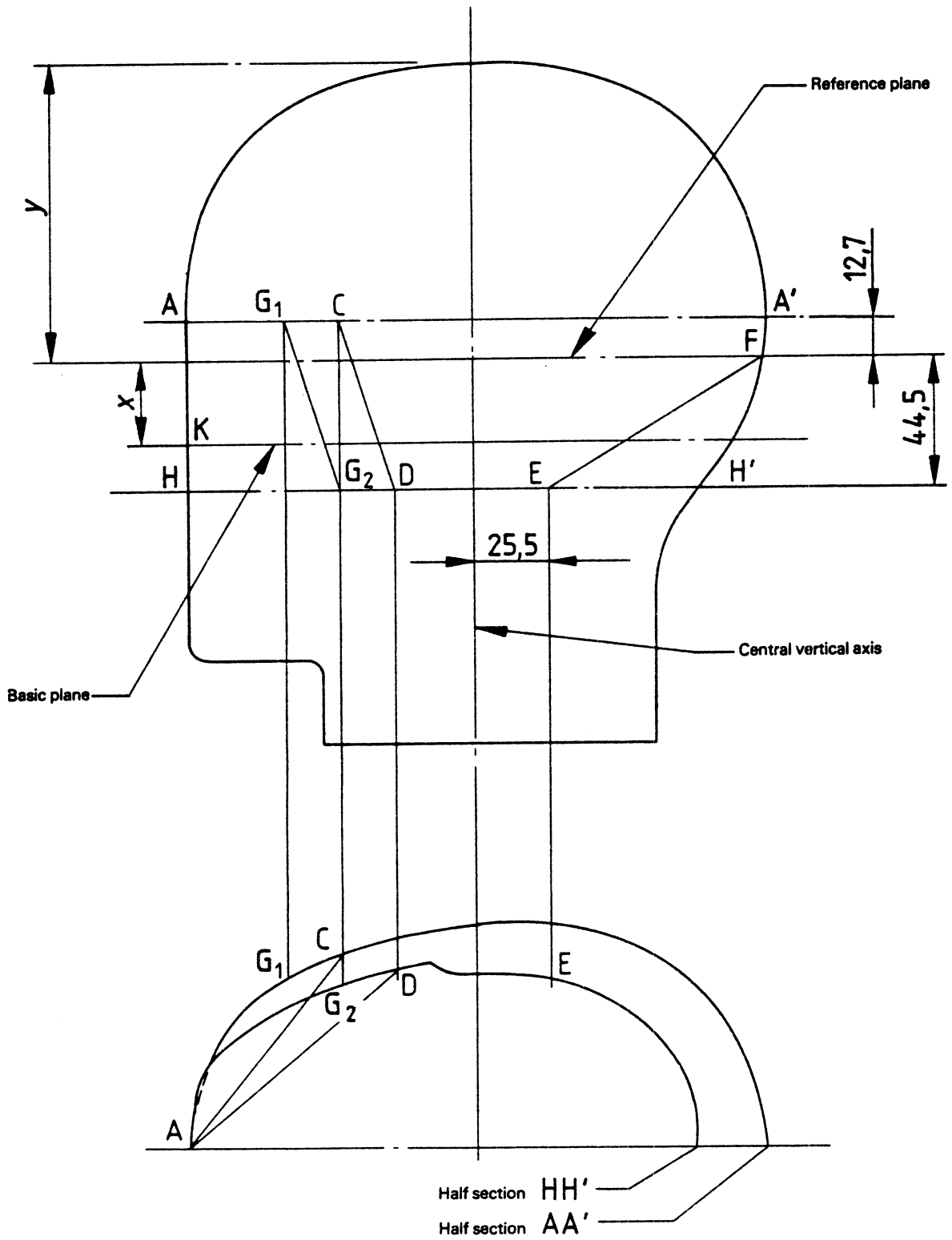


Figure 1 — Marking shell profile on headforms