

Metal lath and beads — Definitions, requirements and test methods —

Part 1: Internal plastering

The European Standard EN 13658-1:2005 has the status of a
British Standard

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National foreword

This British Standard is the official English language version of EN 13658-1:2005. Together with BS EN 13658-2, it supersedes BS 1369-1:1987 and BS 6452-1:1989, which are withdrawn.

The UK participation in its preparation was entrusted by Technical Committee B/544, Plastering, Rendering, Dry Lining, to Subcommittee B/544/1, Gypsum Plasters, Cast Gypsum And Ancillaries, which has the responsibility to:

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Lattis et cornières métalliques - Définitions, prescriptions et méthodes d'essai - Partie 1 : Enduits intérieurs

Putzträger und Putzprofile aus Metall - Begriffe, Anforderungen und Prüfverfahren - Teil 1: Innenputze

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Foreword

This document (EN 13658-1:2005) has been prepared by Technical Committee CEN/TC 241 "Gypsum and gypsum based products", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by November 2005, and conflicting national standards shall be withdrawn at the latest by February 2007.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

No existing European Standard is superseded.

This European Standard on metal lath and beads consists of two parts :

— *Part 1 : Internal plastering*

— *Part 2 : External rendering.*

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

Introduction

Diagram 1 shows the family of gypsum products and standards.

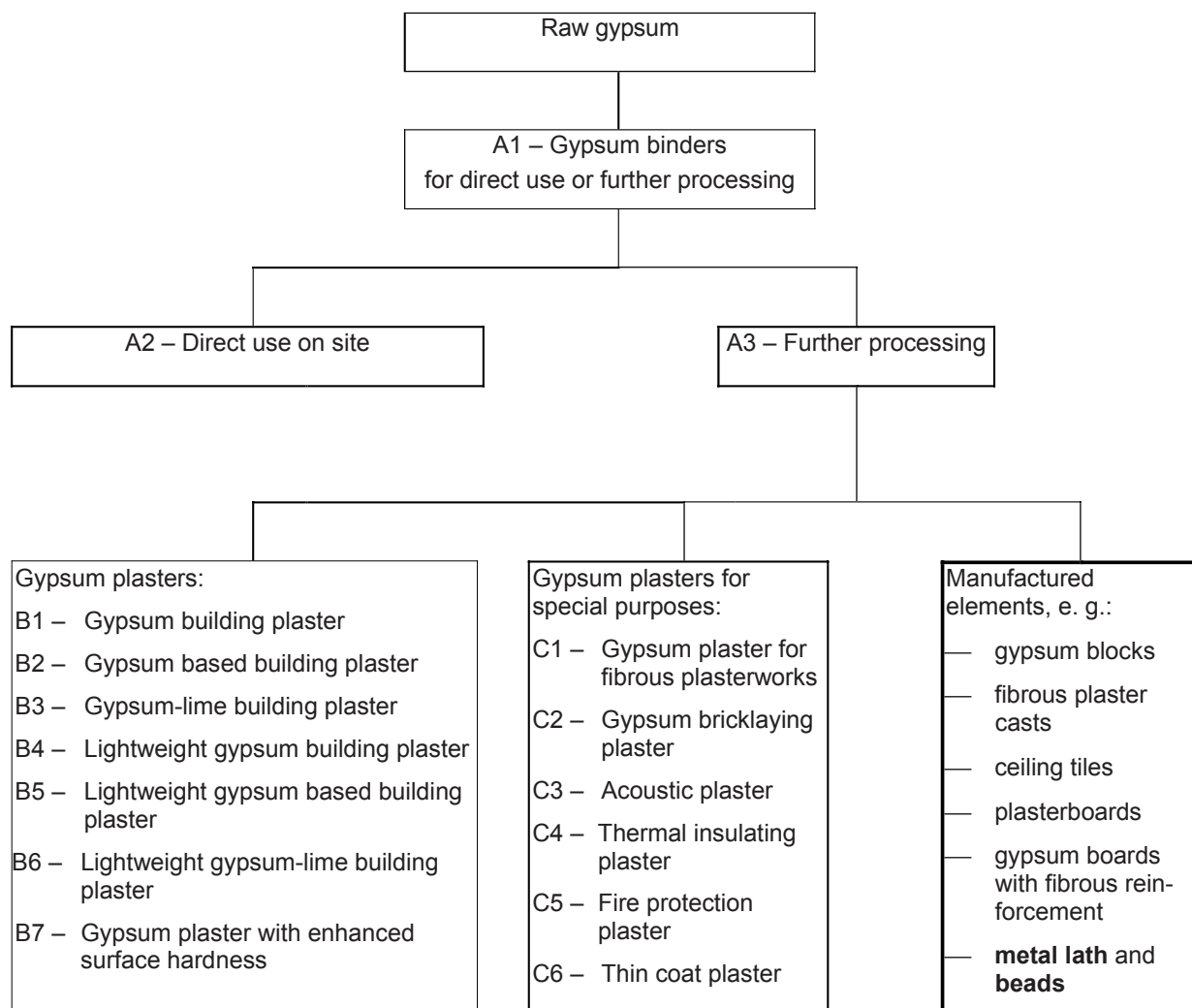


Diagram 1 — Family of gypsum products

1 Scope

This European Standard specifies the requirements and test methods of metal lath and beads for internal plastering.

This European Standard covers metal lath intended to be used for fixing to structures or solid backgrounds to provide a key to hold the plaster in position. Metal lath is used vertically to support linings for walls, partitions and columns and horizontally to support linings for ceilings and beams. Used in this way it enables fire protecting plastering systems to be provided.

This European Standard covers metal beads intended to be used to improve the protection of corners and also provide features to the internal finish of the construction as well as metal beads intended to be used as depth gauge beads and movement or expansion beads. They also contribute to fire protection.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 485-2, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN 485-3, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 3: Tolerances on dimensions and form for hot-rolled products*

EN 573-3, *Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition*

EN 988, *Zinc and zinc alloys - Specifications for rolled flat products for building*

EN 1364-1, *Fire resistance tests for non-loadbearing elements - Part 1: Walls*

EN 1364-2, *Fire resistance tests for non-loadbearing elements - Part 2: Ceilings*

EN 1365-1, *Fire resistance tests for loadbearing elements - Part 1: Walls*

EN 1365-3, *Fire resistance tests for loadbearing elements - Part 3: Beams*

EN 1365-4, *Fire resistance tests for loadbearing elements - Part 4: Columns*

EN 10088-1, *Stainless steels - Part 1: List of stainless steels*

EN 10088-2, *Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip for general purposes*

EN 10143, *Continuously hot-dip metal coated steel sheet and strip - Tolerances on dimensions and shape*

EN 10169-1, *Continuously organic coated (coil coated) steel flat products - Part 1: General information (definitions, materials, tolerances, test methods)*

EN 10218-2, *Steel wire and wire products - General - Part 2: Wire dimensions and tolerances*

EN 10244-1, *Steel wire and wire products - Non-ferrous metallic coatings on steel wire - Part 1: General principles*

EN 10258, *Cold-rolled stainless steel and narrow strip and cut lengths - Tolerances on dimensions and shape*

EN 10264-4, *Steel wire and wire products - Steel wire for ropes - Part 4: Stainless steel wire*

EN 10327, *Continuously hot-dip coated strip and sheet of low carbon steels for cold forming - Technical delivery conditions*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests*

EN 13501-2, *Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN 13914-2, *Design, preparation and application of external rendering and internal plastering - Part 2: Design considerations and essential principles for internal plastering*

3 Terms and definitions

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

3.1 Metal lath

3.1.1

expanded flat metal lath

corrosion resistant diamond shaped mesh to provide a key for plastering (see Figure 3a)

3.1.2

expanded corrugated metal lath

corrosion resistant diamond mesh to provide extra stiffness (see Figure 3b)

3.1.3

expanded ribbed lath

corrosion resistant mesh formed by expanding with integral solid ribs of at least 7 mm height to provide extra stiffness (see Figure 4)

3.1.4

expanded mini ribbed lath

corrosion resistant mesh formed by expanding with integral solid ribs between 4 mm and 7 mm height (see Figure 4)

3.1.5

stainless steel ribbed lath

stainless steel mesh with integral solid ribs of at least 7 mm height

3.1.6

paperbacked ribbed lath

corrosion protected paperbacked mesh with integral ribs of at least 7 mm height

3.1.7

standard paperbacked wire lath

corrosion resistant wire spot welded to form a square mesh to provide a key for plastering; between the horizontal and vertical wires a sheet of cardboard is positioned (see Figure 5)

3.1.8

reinforced paperbacked wire lath

same as 3.1.7, but the reinforcing wires are thicker and less widely spaced in order to increase stiffness

3.1.9

high ribbed paperbacked wire lath

same as 3.1.8, but with thicker wires to provide still greater stiffness

3.1.10

damp proof regular paperbacked wire lath

same as 3.1.8, but with a bituminous paper bonded to the back of the cardboard sheet to provide extra damp control

3.1.11

normal claylath

woven mesh of steel wire with clay pressed on the intersection of the wire and then fired (see Figure 6)

3.1.12

stainless steel claylath

woven mesh of stainless steel wire with clay pressed on the intersection of the wire and then fired (see Figure 6)

3.2 Metal beads and their uses

3.2.1

angle bead

corrosion resistant profiled section used to protect the plastered external angles

NOTE this section can also be fabricated from wire

3.2.2

stop bead

corrosion resistant profiled section used to provide a straight and protected edge to receive the internal plaster

NOTE this section can also be fabricated from wire

3.2.3

featured bead

corrosion resistant profiled section used to enhance the internal plaster finish at the edge

NOTE this section can also be fabricated from wire

3.2.4

movement bead

corrosion resistant profiled section connected with a flexible plastic extrusion capable of a movement within the range of $\pm 1,5$ mm of the internal plaster surface

NOTE this section can also be fabricated from wire

3.2.5

corner movement bead

corrosion resistant profiled section as 3.2.4, with a flexible plastic extrusion used for 90° inner corners (maximum movement $\pm 1,5$ mm)

3.2.6

expansion bead

corrosion resistant profiled section with a flexible extrusion capable of movement greater than $\pm 1,5$ mm, i.e. to allow for background movement which provides vertical and horizontal flexibility

3.2.7

corner expansion bead

corrosion resistant profiled section as 3.2.6 to allow for background movement in 90° inner corners

3.2.8

depth gauge bead

profiled section which can be set on plane surfaces to control the depth of plaster applied

3.3 Metal beads, functional features

3.3.1

profiled face/edge

surface or edge of bead used to provide the feature or function

3.3.2

wing

area of metal strip joining the bead face or edge, usually expanded or perforated or welded wire used for fixing and also key for plaster

3.3.3

open area

percentage of wing area perforated or expanded or percentage of opening between welded wires

NOTE See Table 1 for geometric profiles

4 Requirements

4.1 Fire behaviour

4.1.1 Reaction to fire

When the intended use of metal lath and beads is for situations in building construction works where there is a risk of exposure to fire, metal lath and beads shall be classified A1 without the need of testing¹ unless they have organic coatings or flexible middle parts. In this case they shall be tested and classified in accordance with EN 13501-1.

4.1.2 Fire resistance

Metal lath and beads can be used in walls, partitions and ceilings and encasement systems providing fire ratings.

When required, the fire rating of the system shall be tested to EN 1364-1, EN 1364-2, EN 1365-1, EN 1365-3 and EN 1365-4 as appropriate and classified to EN 13501-2.

4.2 Requirements for lath

4.2.1 Material

Lath shall be manufactured from the materials and finishes shown in Table 2. The corrosion resistant selected material and finish shall provide a satisfactory level of protection against corrosion under conditions of intended use, i.e. regional requirements.

4.2.2 Description

- a) Expanded lath, ribbed lath and wire lath shall be formed to provide the functional requirements of stiffness to span between supports or fixings and have aperture sizes to provide an efficient keying matrix for the plaster. Typical products meeting these requirements are given in Tables 3 and 4 and in Figures 3, 4 and 5 ;
- b) normal and stainless steel claylath are produced in open, half open and closed versions (see Figure 7). At least 60 % of the surface area shall be covered with clay.

¹ According to Commission Decision 96/603/EC as amended.

4.2.3 Dimensions

4.2.3.1 Nominal thickness and diameter

- a) For expanded lath, ribbed lath and wire lath, the thickness/diameter shall be as given in Tables 3 and 4. The tolerances shall be those specified in EN 10143, EN 10218-2 and EN 10264-4 ;
- b) for normal and stainless steel claylath, the nominal sizes of the wire for production (before firing) shall be 0,7 mm and 0,9 mm. Tolerances shall be those specified in EN 10258 for stainless steel wire.

4.2.3.2 Length and width

- a) For expanded lath, ribbed lath and wire lath, the nominal length and width of lath shall be declared by the manufacturer. Tolerances shall be $\pm 1\%$ for length and ± 15 mm for width ;
- b) for normal and stainless steel claylath, the nominal length and width of lath shall be declared by the manufacturer (see Figure 7). Tolerance shall be $\pm 2\%$.

4.2.3.3 Mesh type and size dimensions

- a) For expanded flat lath, when measured as illustrated in Figure 3, the aperture shall be at least 13 mm in the LWM (long way mesh) direction and at least 5 mm in the SWM (short way mesh) direction ;
- b) expanded corrugated lath is produced from flat lath. The minimum height of the corrugated ribs shall be 5 mm ;
- c) expanded ribbed and expanded mini ribbed lath are formed with a rib on each longitudinal edge and with ribs spaced at maximum intervals of 110 mm. For expanded ribbed lath, the minimum height of the ribs shall be 7 mm and for expanded mini ribbed lath between 4 mm and 7 mm. The aperture sizes in the LWM and the SWM directions as specified by the manufacturer shall correspond to Figure 4.

NOTE The dimensions are for "clear aperture" not centre to centre of strands.

4.2.3.4 Standard paperbacked wire lath

The wires shall have a minimum nominal equivalent diameter of 1,4 mm (see Figure 5 and Table 4).

4.2.3.5 Reinforced paperbacked wire lath

Same as 4.2.3.4, but the reinforcing wires shall have a minimum nominal equivalent wire diameter of 3,0 mm spaced at distances not greater than 150 mm. The moment of inertia in the direction where increased stiffness is required shall be at least 10 mm^4 .

4.2.3.6 High ribbed paperbacked wire lath

Same as 4.2.3.4 but the reinforcing wires shall have a minimum nominal equivalent wire diameter of 3,9 mm spaced at distances not greater than 150 mm. The moment of inertia in the direction where increased stiffness is required shall be at least 30 mm^4 .

4.2.3.7 Normal and stainless steel claylath

For requirements, see Table 5 and Figure 7. The figure shows the open type. In half open and closed claylath the apertures between the crosses may be closed with fired clay.