FIBO 850 ULTRA LIGHTWEIGHT

Product data updated: 24th Jul 2025

Fibo 850 ultra lightweight concrete blocks are available in 100mm and 140mm thicknesses. They are suitable for general-purpose walling applications and provide a strong background for applying plasters, renders and fixings. Fibo 850 blocks are easy to handle and provide great thermal efficiency values.

Manufactured to BS EN 771-3, they consist of expanded clay aggregates and a mixture of other naturally occurring raw materials and cement. The clay aggregate is produced from carefully selected clays, which are bloated through heat expansion to create a low density, porous aggregate with numerous cavities. This makes Fibo 850 incredibly light and thermally efficient.

Specification & Application

Standards

Fibo 850 blocks are BSI Kitemarked and certified to BS EN 771-3. They are also Category 1 masonry units manufactured under a BSI-certified Quality Management System, which is BS EN 9001 compliant.

Appearance

Fibo 850 blocks have an open textured surface, which is ideal for applying plaster and render.

Application

Fibo 850 are suitable for housing and building extension projects. They can also be used to construct walls in buildings where blockwork with a low self-weight has been specified (e.g., partition walls on floor slabs).

Typical locations include:

- The inner and outer leaves of external cavity walls
- Internal walls, including fire break walls
- Below ground (7.3N/mm^2 strength blocks, such as Lignacrete Standard, should be used for walls exposed to the external ground)

For use in separating walls meeting the requirements of Part E of the Building Regulations, we recommend the use of products from the Lignacite GP and Lignacrete ranges.

Specification

Face Size	440mm x 215mm
Thickness	100mm, 140mm
Mean Unit Strength	3.6N/mm^2.
Configuration	Group 1, solid blocks
Dimensional Tolerances	Category D1
Net Dry Density	850 kg/m^3 (Fibo 850).
Thermal Conductivity	0.27 W/mK (at 3% moisture content, internal use, Fibo 850).
Reaction to Fire	Class A1
Moisture Movement	0.6mm/m
Durability Against Freezing/Thawing	Frost resistance in accordance with PD 6697, Table 15.

Weights & Pack Sizes

All weights are approximate and subject to normal variations in raw materials.

Table 1 – Block Weights and Pack Sizes

Size nominal (mm) (L x W x H)	Thickness & block type	Unit weight (kg)	Laid weight inc. mortar (kg/m²)	No. of blocks per pack
Fibo 850 - 440 x 100 x 215	100mm solid	8.5	96	72
Fibo 850 - 440 x 140 x 215	140mm solid	11.9	134	48

Table 1 Notes:
(1) Weights are based on 3% moisture content by weight.

Coursing Blocks

Coursing Blocks compliment the use of standard size blocks and are available in 100mm and 140mm thicknesses. They can be used as infill as well as general coursing and their use will remove the need for on-site cutting, which reduces waste and improves productivity. Their use will enable a uniform performance to be achieved throughout a wall.

Fibo 850 Coursing Block - Front View

Table 2 – Coursing Block Weights and Pack Sizes

Size nominal (mm) (L x W x H)	Compressive Strength (N/mm²)	Typical unit weight (kg)	No. of coursing units per pack
440 x 100 x 65	7.3	2.5	208
440 x 140 x 65	7.3	3.5	156

Table 2 Notes:
(1) To aid transportation, Coursing Blocks are supplied banded to pallets.
(2) Unit weights are approximate and based on 3% moisture content by weight.

Sound Properties

Fibo 850 blockwork provides good levels of sound insulation. The Weighted Sound Reduction Index (Rw) values of various wall constructions are shown in Table 3.

Table 3 – Sound Reduction Values

Weighted Sound Reduction Index: Rw, (dB):

	Plaster finish	Plasterboard on dabs
100mm Fibo 850	40	42
140mm Fibo 850	42	44

Table 3 Notes:
(1) Sound insulation values are based on technical assessments and tests to BS EN ISO 140-3.
(2) Surface finishes are assumed to be applied to both wall faces.

Fire Resistance

Fibo 850 blocks are rated as Class A1, in accordance with BS EN 13501-1:2007+A1:2009. A1 materials are completely non-combustible and make no contribution to fire.

The fire resistance periods of Fibo 850 loadbearing and non-loadbearing walls are shown in Table 4, derived from the National Annex to BS EN 1996-1-2.

The fire resistance of loadbearing walls is influenced by the proportion of the load on a wall, which is annotated in the National Annex as a ≤1.0 or a ≤ 0.6. The fire values presented are based on the worst loading case (≤1.0) and can therefore be safely used for all loading conditions.

The thicknesses shown are for masonry alone, excluding finishes. For the fire resistance of walls with finishes, refer to the Lignacite Design Guide – Fire Resistance.

Table 4 – Fire Resistance

Solid blocks (Group 1 units) No finish	**Non-loadbearing wall** (criteria E1)	**Loadbearing wall** (criteria RE1)
100mm Fibo 850	3 hours	2 hours
140mm Fibo 850	4 hours	3 hours

Thermal Properties

The thermal resistance values (m^2 K/W) for Fibo 850 blocks are shown in Table 5. The values are calculated by dividing the block thickness by its thermal conductivity (W/mK).

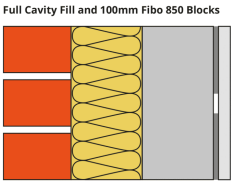
Table 5 – Thermal Resistance Values

	Thermal Resistance (m^2 K/W): 3% m/c	Thermal Resistance (m^2 K/W): 5% m/c
100mm Fibo 850	0.37	0.35
140mm Fibo 850	0.52	0.48

Table 5 Notes:
(1) 3% moisture content (m/c) should be used for protected locations, such as the inner leaf, and 5% for exposed locations, such as the outer leaf when rendered.

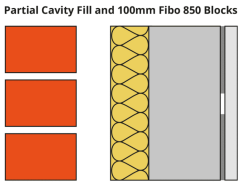
Presented in the tables below are the U-values for a range of wall constructions based on 100mm Fibo 850 blocks with full and partial cavity insulation. The outer leaf is facing brick, but a rendered block outer leaf will usually achieve at least the same U-value.

Full Cavity Fill and 100mm Fibo 850 Blocks



Cavity fill type	Internal finish - 12.5mm plasterboard on dabs U-values (W/m^2 K)	Internal finish - 13mm lightweight plaster U-values (W/m^2 K)
100mm DriTherm Cavity Slab 32 Ultimate	0.25	0.26
125mm DriTherm Cavity Slab 32 Ultimate	0.21	0.22
150mm DriTherm Cavity Slab 32 Ultimate	0.18	0.19
100mm Isover CWS 32	0.25	0.26
125mm Isover CWS 32	0.21	0.22
150mm Isover CWS 32	0.18	0.19
90mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.18	0.18
115mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.14	0.15
140mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.12	0.12
90mm Eurowall + (plus a 10mm cavity)	0.19	0.19
115mm Eurowall + (plus a 10mm cavity)	0.16	0.16
140mm Eurowall + (plus a 10mm cavity)	0.13	0.14
100mm Xtratherm Cavity Therm	0.18	0.19
125mm Xtratherm Cavity Therm	0.15	0.15
150mm Xtratherm Cavity Therm	0.14	0.13

Partial Cavity Fill and 100mm Fibo 850 Blocks



Cavity fill type	Internal finish - 12.5mm plasterboard on dabs U-values (W/m² K)	Internal finish - 13mm lightweight plaster U-values (W/m² K)
60mm Celotex CW4000	0.24	0.24
75mm Celotex CW4000	0.21	0.21
100mm Celotex CW4000	0.17	0.17
60mm Kingspan Kooltherm K108	0.21	0.22
75mm Kingspan Kooltherm K108	0.18	0.19
100mm Kingspan Kooltherm K108	0.15	0.15
60mm Eurowall Cavity	0.24	0.24
75mm Eurowall Cavity	0.21	0.21
100mm Eurowall Cavity	0.17	0.17
100mm Rockwool Partial Fill	0.25	0.26
150mm Rockwool Partial Fill	0.19	0.19
170mm Rockwool Partial Fill	0.17	0.17
100mm Isover CWS 32	0.24	0.25
125mm Isover CWS 32	0.20	0.21
150mm Isover CWS 32	0.18	0.18

Cavity Fill Table's Notes:
(1) The U-values shown are based on the use of various proprietary insulation products. Alternative products can be used, provided they can achieve an equivalent thermal resistance (m² K/W).
(2) Wall ties are assumed to be stainless steel with a cross-sectional area of no more than 12.5mm² for structural cavities up to 125mm wide.
(3) The suitability of full fill cavity insulation materials will depend on exposure conditions and should be confirmed by the designer. For partial cavity fill, a 50mm residual should be maintained (always check the manufacturer's guidance).

Sustainability

Environmental Management and Responsible Sourcing

Our manufacturing plants operate to a BSI certified Environmental Management System (EMS), which complies with ISO 14001.

Lignacite Ltd also meets the requirements of BES 6001 – Framework Standard for the Responsible Sourcing of Construction Products (Certificate No: BES 580823). This independently awarded Responsible Sourcing Certification confirms that our products have been made with constituent materials that have been responsibly sourced. This extends to organisational governance, supply chain management and environmental and social aspects, all of which must be addressed in order to ensure the responsible sourcing of construction products. Certification to BES 6001 will allow credits to be gained under environment assessment schemes such as BREEAM.

Energy Management

A BSI certified energy management system in accordance with ISO 50001 (Certificate No. ENMS 751020) is used to help manage energy use.

Compliance with ISO 50001 is a valuable tool in helping to manage energy use and includes the following outputs.

- A policy for more efficient use of energy
- Fix targets and objectives to meet the policy
- Use data to better understand and make decisions about energy use
- Measure the results
- Review how well the policy works, and
- Continually improve energy management

Environmental Performance Declaration (EPD)

Key environmental performance data (in accordance with EN 15804+A2 and ISO 14025/ ISO 1930) can be found in the EPD for Fibo blocks.

Environmental Data Summary

Declared unit	1m²
Declared unit mass	80 kg
GWP-fossil, A1-A3 (kgCO2e)	34.8
GWP-total, A1-A3 (kgCO2e)	35.5
Secondary material, inputs (%)	27.8
Secondary material, outputs (%)	80
Total energy use, A1-A3 (kWh)	80.8
Total water use, A1-A3 (m3e)	7.5E-1

Source – This data was taken from the EPD for the 3.6N Fibo block. Click here for all EPDs.

The declared unit is based on 1m² of 100mm thickness blocks.

The Life Cycle Stage (A1-A3) refers to the extraction, processing, transportation and manufacture of materials and products up to the point where they leave the factory gate to be taken to site.

The notation 'e' is an abbreviation for tonnes of carbon dioxide equivalent.

Design

Structural Design

The design of walls using Fibo 850 blocks should be in accordance with relevant design standards including BS 8103: Part 2 and BS EN 1996-1-1 and the requirements of the Building Regulations.

Movement Control

Vertical movement joints should be considered in accordance with masonry design codes and the recommendations of Published Document PD 6697, at 6.0 - 7.0 metre spacings. In areas of increased stress, such as above and below openings in external walls, the blockwork may need to be reinforced to restrain movement.

Service Life

When properly constructed, the durability of walls built using Fibo 850 products will match that of traditional masonry and will fulfil their intended function for the life of the building in which they have been installed (typically 100 years).

The blocks themselves will require no maintenance. Maintenance for walls will normally include the replacement of sealant in movement joints and at junctions / openings. Repointing for walls that are exposed to the elements may be necessary towards the end of their service life.

Wall Ties

Under normal conditions, wall ties should be embedded 50mm into the mortar on each leaf, staggered in alternate courses and spaced in accordance with the following.

Table 6 – Wall Tie Spacings

Leaf Thickness (mm)	Cavity Width (mm)	Horizontal Spacing (mm)	Vertical Spacing (mm)	Ties per m²
Less than 90mm	50 - 75	450	450	4.9
Over 90mm	50 - 150	900	450	2.5

Mortar

Generally, the mortar type for work above ground level should be designation (iii) / Compressive Class M4. Designation (ii) / Compressive Class M6 mixes should be used for work below ground in conditions where there is a risk of saturation with freezing.

Table 7 – Mortar Mixes

Mortar Designation (as per BS 5628-3)	Compressive Strength Class (as per BS EN 1996)	Recommended mix proportions of materials by volume
(iii)	M4	1:1:5 to 6 - Cement:Lime:Sand. 1:5 to 6 - Cement:Sand with or without air entrainment. 1:4 to 5 - Masonry Cement:Sand (with non-lime filler). 1:3½:4 - Masonry Cement:Sand (with lime filler).
(ii)	M6	1:½:4-4½ - Cement:Lime: Sand. 1:3 to 4 - Cement:Sand with or without air entrainment. 1:2½:3½ - Masonry Cement:Sand (with non-lime filler). 1:3 - Masonry Cement:Sand (with lime filler).

Site Practice

Surface Finish Recommendations

Drylining

Standard plasterboard can be fixed using adhesive tabs or onto timber battens or metal studs.

Plaster

Dense plasters can be applied using either 1:1:6 cement:lime:sand or 1:4 ½ masonry cement:sand or 1:5 ½ cement:sand and plasticiser. It is advisable to use a bonding treatment prior to applying cement render plasters.

Lightweight plasters should be used in accordance with the manufacturer's recommendations. Suitable plasters include British Gypsum's Thistle Hardwall.

Finishing coats include British Gypsum's Thistle Multi-Finish.

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Rendering

Fibo 850 blocks have a good base combined with moderate absorption. The open textured surface aids the adhesion of plasters and renders.

Before rendering, all dirt and debris must be removed from the surface. Traditional renders should be applied in 2 coats with the first coat applied to a greater thickness than the top coat (the first coat should be 8-12mm thick and the top coat 6-8mm). Render designation iii/M4 should be used, as shown in Table 7.

It is important that blocks are protected from the weather prior to and during rendering.

Table 8 – Render Mixes

Cement: Lime: Sand (with or without air entrainment)	Cement: Sand (with or without air entrainment)	Masonry Cement: Sand (with non-lime filler)	Masonry Cement: Sand (with lime filler)
1 : 1 : 5 or 6	1 : 5 or 6	1 : 4 or 5	1 : 3½ to 4

Builders considering the use of proprietary render systems must exercise caution and accurately adhere to the render manufacturer's design and specification instructions. Detailed guidance is also published in the NHBC Standards, Chapter 6.11- Render. Strictly adhere to the specific application instructions, paying particular attention to prevailing weather conditions and the minimum recommended thickness of single coat renders.

Safe Handling

For detailed advice, refer to Lignacite's Sitework Guide and the Material Safety Data sheet.

- Block packs may be stacked on firm and level surfaces to a maximum height of 2 packs. Consideration of handling equipment's suitability for site terrain and safety limits should also be given. Hand-operated pallet trucks may not be suitable unless pallets specific for this purpose are used and loads do not exceed the limits of the pallet truck or its operator(s). Care should be taken when opening packs that are wrapped or banded to ensure that items do not fall or otherwise endanger persons handling the blocks or those nearby.
- Handling of blocks should be undertaken in accordance with HSE Construction Sheet No. CIS77 'Preventing injury from handling heavy blocks' (Construction Industry Advisory Committee) and in accordance with the Manual Handling Regulations 1992 (as amended). This concludes that there is a high risk of injury to individuals who repetitively manually handle blocks in excess of 20 kg. Where practical, mechanical handling equipment should be used to transport block packs to the area of work.
- Blocks should not be installed if the temperature is at or below 3°C and falling.
- Blocks should always be laid on a full bed of mortar and vertical joints solidly filled.