THOMAS ARMSTRONG
(CONCRETE BLOCKS) LTD

HOLLOW

Hollow Dense Concrete Blocks

Hollow Dense concrete blocks are ideal for applications where a durable, lower-weight and high strength wall is required either above or below damp-proof course. The hollow cores can be filled with rebar and poured concrete to form incredibly strong resilient walls. Available in Standard Grade finish and 140mm or 215mm widths.

All dense blocks are manufactured from high quality class 2 aggregates, including a significant proportion of recycled raw material and are suitable for use above and below damp-proof course (DPC).

Dense blocks are manufactured to BS EN 771-3 and are ISO 9001 Quality Assured, ISO 14001 Environmentally Certified and hold BES 6001 Responsible Sourcing certification.

TECHNICAL PROPERTIES

Property	Value
Face Size (BS EN 771-3):	440mm x 215mm
Dimensional Tolerance (BS EN 772-16):	Category D1
Gross Dry Density (BS EN 772-13):	1850 - 2100 kg/m³
Mean Compressive Strength (BS EN 772-1):	7.3 N/mm²
Manufacturing Category (BS EN 771-3):	Category II
Thermal Conductivity (BS EN 1745):	0.88 W/mK [inner leaf] 0.96 W/mK [outer leaf]
Moisture Movement (BS EN 772-14):	< 0.6 mm/m
Fire Resistance (BS EN 13501-1):	Class A1 reaction to fire
Configuration (BS EN 1996-1-1):	Hollow - Group 2
Available Texture, Finish:	Standard

bsi. ISO 9001 Quality Management FS 665648 · ISO 14001 Environmental Management EMS 665649 · BES 6001 Responsible Sourcing of Construction Products BES 665651 BES 665634

APPLICATIONS

- Manufactured to BS EN 771-3.
- Single-leaf applications such as commercial and agricultural construction.
- Reinforced walls, retaining walls.
- Standard texture finish provides an excellent surface for mortars, renders and plasters. Paint Grade finish available for smooth, internal painted applications.
- Robust, accepts most standard fixings.

PHYSICAL PROPERTIES

Block Size mm	'R' Value m²k/W	Walled Weight kg/m² See Note 1	Sound Reduction Rw, dB See Note 2	Block Weight kg See Note 3	Fire Resistance Hours See Note 4
140	0.16	193	48	19.6	4
215	0.24	257	51	26.0	4

PACK DETAILS

Block Size mm	Blocks per pack	m² per pack
140	60	6.0
215	40	4.0

1. Walled weight is for a single-leaf wall, plastered on both sides.
2. Sound Reduction Rw values are based on wall mass and assumes a plastered finish on both sides.
3. The block weights quoted above are approximate and include the typical additional weight from the equilibrium (3%) moisture content of the block. Received block weights will be significantly higher and are variable due to moisture content.
4. Fire resistance periods to BS EN 1996-1-2 for a single-leaf, non-loadbearing plastered wall.

Pack details may vary slightly between manufacturing locations. Always check details with your nearest sales office.

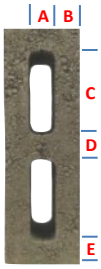
Splitter Units

Each pack contains a number of 'splitter units' which have a formed void across the centre of the block. Using a bolster and hammer, these blocks can be easily split in half wherever a hollow half-block is required. Generally, there are 2 splitter units per layer in each pack although this may vary between manufacturing locations. Please contact your local sales office for specific details.

Void Configuration

Blocks manufactured at different locations have slight variations on void shapes, sizes and shell thickness. The details below are for our most common configurations. Please contact your local sales office for specific, up to date details.

Sizes are approximate and intended as a guide only. Precise measurements cannot be guaranteed as BS EN 771-3 tolerances are adhered to.



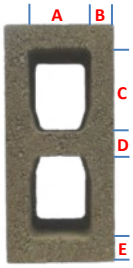
140mm Hollow (non-splitter block)

	Pickhill	Congleton
A mm	46	60
B mm	47	40
C mm	150	150
D mm	50	50
E mm	45	45

Note:

Only manufactured at our Pickhill and Congleton sites.

Congleton blocks have sharper void corners than the Pickhill blocks.



215mm Hollow (non-splitter block)

	Type 1	Type 2
A mm	125	110
B mm	45	52
C mm	152	145
D mm	42	50
E mm	47	50

Type 1:
Pickhill & Silloth

Type 2:
Leeds, Congleton, Aintree

Below Ground

All of our aggregate and dense concrete blocks are durable products which are suitable for use in soil conditions up to Design Sulphate class DS-3 as defined in BRE Special Digest 1. Hollow dense concrete blocks of any strength can be used below dpc.

Suspended Block & Beam Floors

Hollow dense blocks are not suitable for use as infill blocks in block and beam floors

Fire Resistance

Solid Dense blocks are non-combustible with zero spread of flame and are classed as Class 'A1' in accordance with BS EN 13501-1. Notional fire resistance periods based on BS EN 1996-1-2 are:

Block mm	Loadbearing Wall		Non-loadbearing Wall	
	No Finish	VG Plaster	No Finish	VG Plaster
140	3 hours	3 hours	4 hours	4 hours
215	4 hours	4 hours	4 hours	4 hours

"VG" = vermiculite / gypsum plaster or pearlite plaster 13mm thick applied to both faces of single leaf walls.

Mortars

Hollow dense block surfaces offer an excellent surface for accepting mortars and no pre-treatment is required other than ensuring that all dirt and debris is removed. Generally, in order to avoid unsightly cracking, the weakest mortar mixture appropriate to the structural requirements should be selected as per BS 5628-3. For most applications, we recommend that grade iii mortar is used.

	Mortar Class BS EN 1996-1-1	Recommended mix proportions of materials by volume (as per BS EN 998-2)	
Above dpc	(iii) M4	1 : 1 : 5½ to 6 1 : 5½ to 6 1 : 4½ to 5	Cement : Lime : Sand Cement : Sand (with plasticiser) Masonry Cement : Sand
Below dpc	(ii) M6	1 : ½ : 4 to 4½ 1 : 3½ to 4	Cement : Lime : Sand Cement : Sand

External Rendering

Hollow dense blocks have a surface which provides an excellent key for adhesion. These blocks have low - moderate suction and no special pre-treatment of the wall is required other than ensuring that all dirt and debris is removed from the surface.

Traditional renders should be applied in 2 coats. The first coat should not exceed 15mm and the second coat should be 5 - 7mm. The first coat should be slightly stronger than the second coat. Render designation iii/M4 should be used, recommended proportions:

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

Wall Ties & Movement Joints

Generally 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:

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

For unreinforced masonry panels, the typical recommended spacing between vertical movement joints for Dense blocks is 7m - 9m for internal and external walls.

Good Site Practice & Safe Handling

- Packs should be stored on firm, level ground no more than 2 packs high and protected from severe weather to preserve their quality. Care must be taken when removing the plastic bands as individual blocks may fall out. Never un-band packs above shoulder height.
- In the absence of a revised version of the HSE guidance given in their withdrawn Construction Sheet 37 ' Handling Building Blocks' the following principles should be followed: There is a risk of injury in the repetitive handling of blocks heavier than 20kg. Repetitive manual handling of blocks over 20kg should be subject to a risk assessment and a safe system of work should be established before block-laying commences.
- Blocks should not be laid 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 filled.

NBS Clauses for our concrete block products can be found on **www.source.thenbs.com**

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