

HOLLOW

Dense Concrete Blocks

- Manufactured to BS EN 771-3
- Available in STANDARD texture



Hollow Dense blocks are perfect for agricultural and commercial applications. Strong, reinforced walls can be easily constructed quickly and economically.

Hollow blocks are manufactured from high quality class 2 aggregates, consist of up to 30% recycled raw material and are ISO 14001 certified at most manufacturing locations (please check with your local sales office).



TECHNICAL PROPERTIES

| Property | Value |
|--|--|
| Face Size (BS EN 771-3): | 440 x 215mm |
| Dimensional Tolerance (BS EN 772-16): | Category D1 |
| Gross Dry Density (BS EN 772-13): | 1900 - 2100 kg/m ³ |
| Mean Compressive Strength (BS EN 772-1): | 7.3, 10.4 N/mm ² (Higher strengths are available to order) |
| Manufacturing Category (BS EN 771-3): | Category II |
| Thermal Conductivity (BS EN 1745): | 0.88 W/mK (protected inner leaf) 0.92 W/mK (exposed outer leaf) |
| Moisture Movement (BS EN 772-14): | 0.06 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 texture only |

PHYSICAL PROPERTIES

| Block Size mm | 'R' Value m ² k/W | Walled Weight kg/m ² See Note 1 | Sound Reduction R _w , dB See Note 2 | Block Weight kg See Note 3 | Fire Resistance Hours See Note 4 |
|------------------|---------------------------------|---|---|-------------------------------------|---|
| 140 | 0.16 | 210 | 50 | 19.6 | 4 |
| 190 | 0.17 | 249 | 51 | 23.5 | 4 |
| 215 | 0.24 | 282 | 52 | 26.0 | 6 |

1. Walled weight is for a single-leaf wall, plastered both sides.
2. Sound reduction R_w values are based on wall assuming a plastered finish both sides.
3. Block weights quoted above are approximate and include the typical additional weight from the natural moisture content although this can vary slightly.
4. Fire resistance periods to BS 5628-3 for a single-leaf, loadbearing plastered wall.

APPLICATIONS

- Agricultural and commercial single-leaf applications where large, external wall panels are required, e.g. sheds, bunkers, retaining walls.
- The cores can be filled with poured concrete and steel rebar to form extremely strong reinforced walls with high resistance to lateral loads. Ideal for lining swimming pools, ponds, drainage channels.
- Standard texture finish provides an excellent surface for mortars, renders and plasters.
- Robust, accepts most standard fixings.
- Half the weight of an equivalent solid block.

PACK DETAILS

| Block Size mm | Blocks per pack | m ² per pack |
|------------------|--------------------|----------------------------|
| 140 | 60 | 6.0 |
| 190 | 40 | 4.0 |
| 215 | 40 | 4.0 |

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

NBS Clauses for our concrete block products can be found on www.ribaproductselector.com

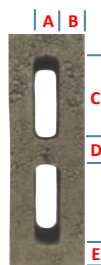
NBSPlus

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 3 most common configurations which are approximate and intended as a guide only. Please contact your local sales office for specific, up to date details.

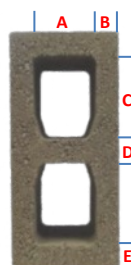


140mm Hollow (non-splitter block)

| | Pickhill | Barnetts |
|-------------|----------|----------|
| A mm | 46 | 60 |
| B mm | 47 | 40 |
| C mm | 150 | 150 |
| D mm | 50 | 50 |
| E mm | 45 | 45 |

Note:
140mm Hollow blocks are only manufactured at our Pickhill and Barnetts sites.

Barnetts blocks have sharper void corners than the Pickhill blocks.



215mm Hollow (non-splitter block)

| | Type 1 | Type 2 | Type 3 | Type 4 |
|-------------|--------|--------|--------|--------|
| A mm | 125 | 120 | 110 | 145 |
| B mm | 45 | 47 | 52.5 | 35 |
| C mm | 152 | 150 | 145 | 169 |
| D mm | 42 | 46 | 50 | 32 |
| E mm | 47 | 47 | 50 | 35 |

The types listed above are manufactured at the following locations:

Type 1: Pickhill & Silloth **Type 3:** Barnetts Ltd, Congleton
Type 2: William Rainford Ltd, Aintree **Type 4:** Stocks Blocks Ltd, Leeds

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 Digest 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 suspended floors. Solid blocks must be used.

Fire Resistance

Hollow dense blocks are non-combustible with zero spread of flame and are classed as category 'A1' in accordance with BS EN 13501-1. Notional fire resistance periods are:

| Block mm | Non-loadbearing Wall | | Loadbearing Wall | |
|----------|----------------------|------------|------------------|------------|
| | No Finish | VG Plaster | No Finish | VG Plaster |
| 140 | 3 hours | 4 hours | N/A | N/A |
| 190 | 4 hours | 4 hours | 30 mins | 1 hour |
| 215 | 6 hours | 6 hours | 30 mins | 2 hours |

"VG" = vermiculite / gypsum plaster or perlite 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.

| | BS 5628-3 Mortar Class | Recommended mix proportions of materials by volume (as per BS 5628-3) | |
|-----------|------------------------|---|---|
| Above dpc | iii | 1 : 1 : 5 to 6 1 : 5 to 6 1 : 4 to 5 1 : 3½ to 4 | Cement : Lime : Sand Cement : Sand Masonry Cement : Sand (with non-lime filler) Masonry Cement : Sand (with lime filler) |
| Below dpc | iii | <i>A stronger (class ii) mix is preferred - see below</i> | |
| | ii | 1 : ½ : 4 to 4½ 1 : 3 to 4 1 : 2½ to 3½ 1 : 3½ to 4 | Cement : Lime : Sand Cement : Sand Masonry Cement : Sand (with non-lime filler) Masonry Cement : Sand (with lime filler) |

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 m ² |
|-------------------|-----------------|-----------------------|---------------------|-------------------------|
| 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 is as follows:

Internal Walls: 8m – 12m External Walls: 6m – 9m

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.
- For blocks above 20kg, manual handling precautions must be taken on site. See HSE Construction Information Sheet 37 (CIS 37).
- 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.
- Do not wet the blocks before laying. Where necessary, adjust the consistency of the mortar to suit the suction of the block.



Product details and availability may vary between manufacturing locations. Please contact your nearest regional sales office for sales, product and technical advice.

Whinfield Road, Rowlands Gill, Newcastle upon Tyne. NE39 1EH :
 Pickhill, Thirsk, North Yorkshire. YO7 4JQ :
 Blackdyke, Silloth, Cumbria. CA7 4PD :
 Bridge Road, Brompton on Swale, Richmond, North Yorkshire. DL10 7HW :
 Unit G1, Park Road, Blackhill, Consett, Co Durham. DH8 5SP :
 Stocks Blocks Ltd, Ninelands Lane, Garforth, Leeds, West Yorks. LS25 1NT :
 William Rainford Holdings Ltd, Heysham Road, Aintree, Merseyside. L30 6UF :
 Barnetts of Buglawton Ltd, Brook Street, Congleton, Cheshire. CW12 1RH :

Tel: 01207 544214
 Tel: 01845 567282
 Tel: 01900 66114
 Tel: 01748 810204
 Tel: 01207 505655
 Tel: 0113 2320022
 Tel: 0151 5255991
 Tel: 01260 273170

Fax: 01207 541800
 Fax: 01845 567606
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 Fax: 01748 813950
 Fax: 01207 592345
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