

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



Dense Concrete blocks are the most durable and resilient block of our range and are perfect for higher strength, acoustic and decorative applications.

Dense 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):	1850 - 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):	1.17 W/mK (protected inner leaf) 1.26 W/mK (exposed 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):	Solid - Group 1
Available Texture, Finish:	Standard and Fairtex

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
75	0.07	151	45	14.3	2
90	0.08	179	48	17.2	3
100	0.09	199	49	18.8	4
140	0.12	278	52	26.6	6
215	0.19	427	55	40.5	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, non-loadbearing plastered wall.

APPLICATIONS

- Inner & outer leaf of external cavity walls over 3 storeys.
- Internal partition walls.
- Block & beam floor infill.
- Walls below dpc.
- Acoustic separating party walls to Part E of the Building Regulations and Robust Details.
- Standard texture finish provides an excellent surface for mortars, renders and plasters.
- Fairtex close-textured finish available for internal decorative, fair-faced or paint-grade applications.
- Robust, accepts most standard fixings.
- BRE Green Guide A+ rated walls.

PACK DETAILS

Block Size mm	Blocks per pack	m ² per pack
75	96	9.6
90	80	8.0
100 (Void Pack)	72 (66)	7.2 (6.6)
140 (Void Pack)	48 (44)	4.8 (4.4)
215	32	3.2

Pack details may vary slightly between manufacturing locations. Always check details with your nearest sales office. Void packs are only available from our Silloth and Rowlands Gill sites.

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



Thermal

The table below shows examples of how cavity walls built with a solid Dense block inner leaf can meet a range of u-value targets. For specific calculations, please contact our technical department.

U Value W/m ² K	Partially Filled Cavity Brick outer leaf 50mm clear cavity plasterboard on dabs	Fully Filled Cavity Brick outer leaf Fully filled cavity plasterboard on dabs
0.28	55mm Kingspan / Celotex	100mm Dritherm 32
0.25	65mm Kingspan / Celotex	125mm Dritherm 34
0.22	75mm Kingspan / Celotex 70mm Kingspan K8	125mm Springvale Platinum / Plustherm
0.20	85mm Kingspan / Celotex 75mm Kingspan K8	100mm Xtratherm Cavitytherm
0.18	95mm Kingspan / Celotex 90mm Kingspan K8	150mm Springvale Platinum / Plustherm
0.15	120mm Kingspan / Celotex 110mm Kingspan K8	100mm Xtratherm Cavitytherm + 35mm Thermaline Super drylining

Acoustic

Solid Dense blocks are suitable for use in acoustic separating party walls between dwellings and for internal partitions in accordance with Part E of the Building Regulations. They are also suitable for a range of Robust Standard Detail party walls. The figures below are predicted sound reduction ratings based on wall mass:

Block Thickness mm	Walled Weight kg/m ²	Predicted Sound Reduction, Rw		
		Unfinished	Plastered	Dry Lined
75	151	44	45	45
90	179	47	48	48
100	199	48	49	49
140	278	52	52	52

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. Dense Concrete blocks of any strength can be used below dpc.

Suspended Block & Beam Floors

Solid Dense blocks of any strength are suitable for use as infill blocks in block and beam suspended floors and can be laid either 440mm wide or 215mm wide.

Fire Resistance

Solid 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	Loadbearing Wall		Non-loadbearing Wall	
	No Finish	VG Plaster	No Finish	VG Plaster
90	1 hour	2 hours	1.5 hours	3 hours
100	2 hours	4 hours	2 hours	4 hours
140	2 hours	4 hours	3 hours	6 hours

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

Mortars

Dense concrete 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)
	iii	<i>A stronger (class ii) mix is preferred - see below</i>	
Below dpc	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

Standard texture Dense concrete 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. If rendering Dense Fairtex close-textured blocks, a spatterdash or stipple undercoat may be used - please refer to our website for further details.

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.
- Only use non-water based paint on Dense block walls.



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, Knowsthorpe Gate, Cross Green, Leeds. LS9 0NP :
William Rainford Holdings Ltd, Heysham Road, Aintree, Merseyside. L30 6UF :
Barnetts of Buglawton Ltd, Brook Street, Congleton, Cheshire. CW12 1RH :
Lakeland Pavers, Ltd, North Lakes Business Park, Flusco, Penrith. CA15 1OJB :

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

Fax: 01207 541800
Fax: 01845 567606
Fax: 01900 66136
Fax: 01748 813950
Fax: 01207 592345
Fax: 0113 2870839
Fax: 0151 5301676
Fax: 01260 298150
Fax: 01900 66136

blocks@thomasarmstrong.co.uk
blocks@thomasarmstrong.co.uk
aggregates@thomasarmstrong.co.uk
airtec@thomasarmstrong.co.uk
blocks@thomasarmstrong.co.uk
stocks.sales@thomasarmstrong.co.uk
wrainford@thomasarmstrong.co.uk
barnetts@thomasarmstrong.co.uk
lakelandpavers@thomasarmstrong.co.uk



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