THOMAS ARMSTRONG
(CONCRETE BLOCKS) LTD

INSULITE STANDARD

Medium Density Aggregate Blocks

Insulite blocks are the perfect versatile all-round building blocks. These medium density aggregate blocks consist of up to 90% recycled raw materials, making them among the most environmentally friendly and sustainable building blocks available.

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

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):	1450 - 1550 kg/m³
Mean Compressive Strength (BS EN 772-1):	3.6, 4.2, 7.3 & 10.4 N/mm²
Manufacturing Category (BS EN 771-3):	Category II
Thermal Conductivity (BS EN 1745):	0.49 W/mK (inner leaf) 0.54 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):	Solid - Group 1
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.
- Inner & outer leaf of external cavity walls.
- Internal partition walls.
- Block & beam floor infill (7.3N/mm² or above).
- Foundation walls below dpc (7.3N/mm² or above).
- 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.
- Robust, accepts most standard fixings.

PHYSICAL PROPERTIES

Block Size mm	'R' Value m^2k/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
75	0.18	108	43	11.5	2
90	0.21	124	45	13.8	3
100	0.24	138	46	15.3	4
140	0.33	193	49	19.7	6
190	0.45	262	52	26.5	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. The block weights quoted above are approximate and include the typical additional weight from the moisture content.
4. Fire resistance periods to BS 5628-3 for a single-leaf, non-loadbearing plastered wall.

PACK DETAILS

Block Size mm	Blocks per pack	m² per pack
75	96	9.6
90	80	8.0
100 (Void Pack)	72 or 90 (84 or 86)	7.2 or 9.0 (8.4 or 8.6)
140 (Void Pack)	60 (56)	6.0 (5.6)
190	40	4.0

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

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We are Part of the Thomas Armstrong Group

Thermal

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

U Value W/m²K	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	40mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022	100mm batt @ 0.034
0.25	50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022	100mm batt @ 0.030 125mm batt @ 0.037
0.22	60mm PIR/PU @ 0.018 70mm PIR/PU @ 0.022	125mm batt @ 0.032
0.20	65mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022	100mm batt @ 0.021
0.18	75mm PIR/PU @ 0.018 95mm PIR/PU @ 0.022	150mm batt @ 0.030
0.15	95mm PIR/PU @ 0.018 115mm PIR/PU @ 0.022	100mm batt @ 0.021 + 30mm insulated drylining

Acoustic

Insulite 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/m²	Predicted Sound Reduction, Rw		
		Unfinished	Plastered	Dry Lined
75	108	42	43	43
90	124	44	45	45
100	138	45	46	46
140	193	48	49	49

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. Insulite blocks of 7.3N/mm² or above can be used below dpc; lower strengths are not suitable.

Suspended Block & Beam Floors

Insulite blocks of 7.3N/mm² or above can be used as infill blocks in block and beam suspended floors and can be laid either 440mm wide or 215mm wide.

Fire Resistance

Insulite 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 are:

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

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

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

Mortars

Insulite Standard blocks 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	*A stronger (class ii) mix is preferred - see below*	
	ii	1 : ¼ : 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

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

Traditional renders should be applied in 2 coats. The first coat should not exceed 15mm and the second coat 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 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 77 (CIS-77).
- 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.

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

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Yorkshire, Humber and Lincolnshire Region :	Tel: 0113 232 0022	Fax: 0113 287 0839	stocks.sales@thomasarmstrong.co.uk
North West, Cheshire, Saffordshire and West Midlands Region :	Tel: 0151 525 5991	Fax: 0151 530 1676	wrsales@thomasarmstrong.co.uk