MANNOK

TECHNICAL SPECIFICATIONS

THERMAL BLOCKS

SUMMARY

Mannok Aircrete Thermal Blocks are manufactured using autoclaved aerated concrete at our manufacturing facility in Derrylin, Co. Fermanagh, N. Ireland. They are supplied in response to customer demand for a building block with efficient thermal properties combined with a high strength to weight ratio.

APPLICATIONS

- Walls
- Columns
- Partitions

PRODUCT TYPE

- Regular shaped solid masonry unit
- Category 1 masonry unit in accordance with EN 771-4

CERTIFICATIONS

- British Board of Agrement – certificate no: 11/4869
- EC certificate of Factory Production Control – 0050-CPR-0971
- Environmental Management system to ISO 14001:2004 – certificate no: EMS 552208

MEMBERSHIPS

- Aircrete Products Association
- British Precast

DELIVERY AND SITE HANDLING

The blocks are supplied shrink-wrapped on pallets suitable for off-loading with mechanical grabs or or by fork-lift trucks. The colour of the banding around the blocks indicates the strength of the blocks, yellow banding = 2.9N/mm^2, blue banding = 5.2N/mm^2, red banding = 7.5N/mm^2. The blocks must be stored clear of the ground on a firm, level surface and protected from rain and water from theground. The shrink wrapping should be kept in place until the blocks are required for use.

ELIMINATE THERMAL BRIDGING WITH MANNOK AIRCRETE THERMAL BLOCKS

The issue of linear thermal bridging is hugely significant and is becoming more so as U-values get even lower. The heat loss from junctions can now account for as much as 40% of the heat lost. The use of Mannok blocks at the relevant junctions can significantly reduce the thermal bridging throughout the structure thus reducing the overall heat loss through the building fabric.

- 1000% more thermally efficient than standard dense concrete blocks
- 175% more thermally efficient than any other thermal block manufactured in Ireland
- Contains up to 75% recycled material
- Category 1 masonry unit as per EN 771-4
- Reduces Thermal Bridging losses by up to 80%

Please visit our website www.mannokbuild.com for a full list of our Mannok accredited construction details.

FIRE RESISTANCE

Mannok Aircrete Thermal Blocks provide excellent fire protection in both load bearing and non load bearing applications. They are classed as non combustible and have a Class 0 resistance to surface spread of flame and category A1 in accordance with BS EN 13501-1. Block thicknesses required for fire resistance periods are shown in the table below.

	6 Hours	4 Hours	3 Hours	2 Hours	90 Mins	60 Mins
Load bearing single leaf wall	215mm	180mm	140mm	100mm	100mm	90mm
Non-load bearing single leaf wall	150mm	100mm	75mm	63mm	63mm	50mm
Load bearing cavity wall	150mm	150mm	140mm	100mm	100mm	90mm
Non-load bearing cavity wall	90mm	75mm	75mm	63mm	63mm	50mm

Vertical Movement joints should be spaced no greater than every 6 metres.

BELOW DPC LEVEL

The blocks are resistant to freeze/thaw conditions likely to occur below the dpc and are therefore suitable for use in situations up to and including MX3.2 as defined in BS EN 1996-2 : 2006, Annex A, Table A1 and A3 as defined in BS 5628-3 : 2005, Table 12, (ie where there is a high risk of saturation with freezing). The blocks are suitable for use in classes DS1, DS2 and DS3 of soil or groundwater as defined in BRE Special Digest 1 : 2005. In unusual soil and/or groundwater conditions, eg soils contaminated by industrial waste or highly acid soils, expert advice should be obtained.

MORTARS

The Mannok Aircrete Thermal Blocks may be built using both sand/cement mortar and thin joint mortar.
Below DPC 1:4 cement/sand + plasticiser
Above DPC 1:6 cement/sand + mortar mix (To manufacturer's instructions)
Thin joint mortar is supplied in 25Kg bags of dry, premixed powder requiring controlled water addition on site. For further information on Thin joint systems refer to Thin Joint data sheet.

INTERNAL PLASTERING

The blocks should be dampened with a fine water spray to control the suction. Apply scud coat (spatterdash/stipple coat) of 2:1 sand/cement with waterproofer or alternatively a proprietary bonding agent maybe used, e.g. Evobond, Unibond, PVA bond.
Scratch coats (6:1 sand/cement) should be applied to a depth of 8-12mm. The scratch coat will be thicker and slightly stronger than the finished coat (5-7mm).
Internal plastering should be in accordance with BS EN 13914-2 and BS 8481. A medium grain sized sand is ideal.

Dabs with dry lining plasterboard or dry lining insulated plasterboard can be used as an internal finish. Gypsum bonding and certain proprietary lightweight finishes are compatible with Mannok Aircrete Thermal Blocks. Check with the manufacturer for suitability prior to use.

CUTTING AND CHASING

Blocks are easily cut using hammer and bolster, tungsten carbide tipped hand saw or bench saw. The use of coursing units reduces the need for cutting and keeps waste to a minimum. Vertical chasing must not exceed one third and horizontal chasing one sixth of the wall thickness. Electrical socket boxes should not be placed back to back. A double blade disc saw connected to a vacuum cleaner can be used for vertical chasing while a socket box sinker can be used for electrical sockets, an S.D.S. type drill with a flat chisel blade will easily remove excess material.
Note: Do not use hammer action or percussion type tools.

WALL TIES AND MOVEMENT JOINTS

Wall ties must comply with BS EN 845-1 and be embedded in the mortar of each leaf of blockwork by a minimum 50mm. Additional wall ties will be required around openings.

Block Thickness (mm)	Cavity Width (mm)	Horizontal spacing (mm)	Vertical spacing (mm)	Ties per m^2
<90mm	50 - 75	450	450	4.9
>90mm	50 - 150	900	450	2.5

AIRCRETE SUPER BLOCKS

TECHNICAL PROPERTIES

Gross Dry Density (Kg/m^3)	480
Mean Compressive Strength (N/mm^2)	2.9
Thermal Conductivity (W/m.K)	0.12
Dimensional Tolerance in GPLM	D1
Dimensional stability/moisture movement (mm/m)	<0.4

PACKAGING

Block Thickness (mm) Note 1	Thermal Resistance (m2K/W)	No. Block per pack	Wall area per pack (m2) Note 2	Approx Block Wt. @ 3% moisture (Kg)	Approx Wt. of wall per m2 (Kg)
75*	0.62	96	9.72	3.51	35
100	0.83	72	7.30	4.68	46
115*	0.96	64	6.48	5.38	53
125*	1.04	56	5.67	5.85	58
140	1.16	48	4.86	6.55	65
150	1.25	48	4.86	7.02	69
200*	1.66	32	3.24	9.35	93
215	1.79	32	3.24	10.06	100
250*	2.08	24	2.43	11.69	116
275*	2.29	24	2.43	12.86	127
300	2.50	24	2.43	14.03	139

NOTES

1.*Sizes made to order

2. Wall area includes and allows for 10mm conventional mortar joints. All block face sizes are (Length x Height) 440mm x 215mm. Pack sizes are approx 900mm x 900mm x 900mm

COURSING UNITS

Coursing units are available in the following:

Length (mm)	Width (mm)	Height (mm)	Unit wt.(Kg)@ 3% moisture	No. units per pack	Approx wt. (Kg) per pack @ 3% moisture
215	100	65	0.7	364	255
440	100	100	2.2	112	250
440	140	100	3	90	270
440	150	100	3.25	90	290
440	150	150	4.9	90	440

ACOUSTICS

Mannok Aircrete Super Blocks are not recommended for use in party wall applications.

AIRCRETE STANDARD BLOCKS

TECHNICAL PROPERTIES

Gross Dry Density (Kg/m^3)	650
Mean Compressive Strength (N/mm^2)	5.2
Thermal Conductivity (W/m.K)	0.17
Dimensional Tolerance in GPLM	D1
Dimensional stability/moisture movement (mm/m)	<0.4

PACKAGING

Block Thickness (mm) Note 1	Thermal Resistance (m2K/W)	No. Block per pack	Wall area per pack (m2) Note 2	Approx Block Wt. @ 3% moisture (Kg)	Approx Wt. of wall per m2 (Kg)
75*	0.44	96	9.72	4.75	47
100	0.59	72	7.30	6.33	63
115*	0.68	64	6.48	7.28	72
125*	0.74	56	5.67	7.92	78
140	0.82	48	4.86	8.87	88
150	0.88	48	4.86	9.50	94
200*	1.18	32	3.24	12.67	125
215	1.26	32	3.24	13.62	135
250*	1.47	24	2.43	15.83	157
275*	1.62	24	2.43	17.47	172
300	1.76	24	2.43	19.00	188

NOTES

1.*Sizes made to order

2. Wall area includes and allows for 10mm conventional mortar joints All block face sizes are (Length x Height) 440mm x 215mm. Pack sizes are approx 900mm x 900mm x 900mm

COURSING UNITS

Coursing units are available in the following:

Length (mm)	Width (mm)	Height (mm)	Unit wt.(Kg)@ 3% moisture	No. units per pack	Approx wt. (Kg) per pack @ 3% moisture
215	100	65	0.95	364	345
440	100	100	2.95	112	330
440	140	100	4.10	90	370
440	150	100	4.42	90	400
440	150	150	6.63	90	600

ACOUSTICS

Mannok Aircrete Standard Blocks have a density of 650kg/m^3 and so are suitable for use in party wall construction. Guidance on party wall construction can be found in Robust Details or alternatively contact the Mannok Aircrete Technical Department.

AIRCRETE SEVEN BLOCKS

TECHNICAL PROPERTIES

Gross Dry Density (Kg/m^3)	760
Mean Compressive Strength (N/mm^2)	7.5
Thermal Conductivity (W/m.K)	0.19
Dimensional Tolerance in GPLM	D1
Dimensional stability/moisture movement (mm/m)	<0.4

PACKAGING

Block Thickness (mm) Note 1	Thermal Resistance (m2K/W)	No. Block per pack	Wall area per pack (m2) Note 2	Approx Block Wt. @ 3% moisture (Kg)	Approx Wt. of wall per m2 (Kg)
75*	0.39	96	9.72	5.55	55
100	0.53	72	7.30	7.41	73
115*	0.60	64	6.48	8.52	84
125*	0.66	56	5.67	9.26	92
140	0.74	48	4.86	10.37	103
150	0.79	48	4.86	11.11	110
200*	1.05	32	3.24	14.81	147
215	1.13	32	3.24	15.92	158
250*	1.32	24	2.43	18.51	183
275*	1.45	24	2.43	20.36	202
300	1.58	24	2.43	22.22	220

NOTES

1.*Sizes made to order

2. Wall area includes and allows for 10mm conventional mortar joints. All block face sizes are (Length x Height) 440mm x 215mm. Pack sizes are approx 900mm x 900mm x 900mm.

COURSING UNITS

Coursing units are available in the following:

Length (mm)	Width (mm)	Height (mm)	Unit wt.(Kg)@ 3% moisture	No. units per pack	Approx wt. (Kg) per pack @ 3% moisture
215	100	65	1.1	364	400
440	100	100	3.44	112	385
440	140	100	4.82	90	435
440	150	100	5.16	90	465
440	150	150	7.75	90	700

ACOUSTICS

Mannok Aircrete Seven Blocks have a density of 760kg/m^3 and so are suitable for use in party wall construction. Guidance on party wall construction can be found in Robust Details or alternatively contact the Mannok Aircrete Technical Department.

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