

Aerated Concrete Products

Materials comparison

Make the right choice

Aircrete was invented in Scandinavia in mid 1920s. Currently there is broad range of aircrete products available in the UK, starting from large block sizes to special blocks replacing the cavity walls or engineering for foundations, etc. There are also cursing units to finish off the wall openings with no need to use indifferent material, for example brick. The use of aircrete blocks with no cavity and with the external insulation is becoming more and more popular amongst builders and developers in the UK. Aircrete by offering good thermal insulation and thermal inertia, help to reduce extremes in the internal temperature within the building. Thermal mass allows to absorb the heat during a day and release it over-night. Moreover, thermal mass significantly reduces the overheating problem.

At IBB Polish Building Wholesale we stock the internationally known brand for blocks and panels in the aerated concrete market -Ytong. Ytong products have unlimited construction possibilities and good building physical properties - non- flammable, impermeable to frost and moisture, excellent insulating properties. Ytong products can be used not only to construct inner leaves of cavity walls and partitioning, but also internal, external and fire walls in both load bearing and non load-bearing designs. Moreover, easy and quick installation makes Ytong products great choice for your construction project either residential or commercial. All products are manufactured to comply with European standards EN 771-4 (CE marked).

Ytong blocks are highly recommended to use with the thin joint system due to low shrinkage values and accurate production with very narrow tolerance of the blocks.

Building blocks

Ytong low energy blocks are highly thermally efficient (tilt-lambda 0.07) and highly sustainable, what makes them the perfect choice to construct internal and partition walls and load bearing external walls. The blocks can be laid in either general purpose mortar or thin layer mortar. Mortars for use with Ytong blocks should be as described in BS EN 998-2 Specifications for Mortar for Masonry.

The block consists of sand, lime and cement. The production process creates very little CO2 emissions what makes them highly sustainable. The blocks never lose their energy efficiency or structural values. When a building is demolished the blocks can be recycled to manufacture a new aerated concrete.

Characteristics:

- non-flammable
- impermeable to frost and moisture

- excellent insulating properties, reduces the amount of additional insulation
- helps to create a comfortable living environment
- provides an even temperature range in winter or summer
- highly recommended for use in thin joint system because of low shrinkage values ($<0,2$ mm/m) and accurate dimensions
- the 4.0 standard block can be used in many locations including block and beam floating systems and separating walls according Robust Details (E-WM-6, E-WM-10, E-WM-13, E-WM-15)
- light weight
- easy to cut and chase
- A1 reaction to fire rating
- excellent sound insulation



YTONG 3,6 Standard Blocks - perfectly suited to build the internal and external leafs of cavity walls, solid walls, separating walls, partitions, flanking walls, soil conditions D S-1. Available in range of thicknesses. Laid weight for design purpose incl. 3% moisture approx. 485 kg/m³.

YTONG 7,3 HI-Strength Blocks - available in the range of strength, can be applied in internal and external leafs of cavity walls, solid walls, separating walls, partitions and flanking walls but

also in block and beam flooring systems and are fit for soil conditions D S1, D S2, D S3.

YTONG Foundation Blocks - are commonly used in a range of thicknesses for use below the ground level. Offering beneficial thermal performance, load bearing features for the support of cavity walls and solid walls, framed construction, suspended floors incl. beam and block floors. Very resistant to water penetration. These can be laid below DPC level without mortared perpend

and are fit for soil conditions DS-1, DS-2, DS-3. Ytong Foundations blocks can be used also above ground for solid walls.

YTONG Coursing Units - allow for design and build consistency and are used to finish off the wall openings with no need to use indifferent material.

When selecting a suitable mortar, it is important to ensure that the composition is compatible in strength with the blocks selected for the project.

YTONG 3,6 STANDARD BLOCKS

| Density | Compressive strength | Size | Thickness | Thermal conductivity | Block weight | Blocks/pack |
|-------------------|----------------------|-----------|-----------|----------------------|--------------|-------------|
| kg/m ³ | N/mm ² | mm | mm | W/mK | kg | |
| 450 - 480 | 3,6 | 440 x 215 | 50** | 0,11 | 2,3 | 128 |
| | | | 100* | 0,11 | 4,6 | 72 |
| | | | 140* | 0,11 | 6,5 | 48 |
| | | | 215* | 0,11 | 10,0 | 32 |
| 450 - 480 | 3,6 | 600 x 215 | 100* | 0,11 | 6,3 | 72 |
| | | | 140** | 0,11 | 8,8 | 48 |

YTONG 7,3 HI-STRENGTH BLOCKS

| Density | Compressive strength | Size | Thickness | Thermal conductivity | Block weight | Blocks/pack |
|-------------------|----------------------|-----------|-----------|----------------------|--------------|-------------|
| kg/m ³ | N/mm ² | mm | mm | W/mK | kg | |
| | | | 100** | 0,18 | 7,3 | 72 |
| | | | 140** | 0,18 | 10,3 | 48 |
| | | | 215** | 0,18 | 15,8 | 32 |
| 680 - 750 | 7,3 | 600 x 215 | 100** | 0,18 | 10,0 | 72 |

YTONG FOUNDATION BLOCKS

| Density | Compressive strength | Size | Thickness | Thermal conductivity | Block weight | Blocks/pack |
|-------------------|----------------------|-----------|-----------|----------------------|--------------|-------------|
| kg/m ³ | N/mm ² | mm | mm | W/mK | kg | |
| approx. 620 | 4,0 | 440 x 215 | 300* | 0,15 | 18,2 | 24 |
| approx. 620 | 4,0 | 440 x 215 | 350* | 0,15 | 21,2 | 24 |
| 680 - 750 | 7,3 | 440 x 215 | 300* | 0,18 | 22,0 | 24 |

COURSING UNITS

| Density | Compressive strength | Size | Thickness | Thermal conductivity | Blocks/pack |
|-------------------|----------------------|----------|-----------|----------------------|-------------|
| kg/m ³ | N/mm ² | mm | mm | W/mK | |
| 450 - 480 | 3,6 | 215 x 65 | 100* | 0,11 | 468 |
| 680 - 750 | 7,3 | 215 x 65 | 100* | 0,18 | 468 |

Tables source: Ytong Aerated Concrete Product Guide p.6

Specification of general purpose mortar

When specifying general purpose mortar, the following details of the project should be taken into account:

- the type of masonry unit to be used
- the structural requirements
- the degree of exposure of the site
- the level of workability required
- the location of the masonry, i.e. above or below, ground level

ATLAS SILMUR - masonry mortars for silicate elements, fast setting mortar

Description:

Recommended for constructing walls of silicate elements (all versions), concrete and aerated con-

crete (SILMUR M-10, M-7.5 and M-5).

Used as a thin joint masonry mortar – recommended joint thickness between 2 and 10 mm (optimum thickness: 2-3 mm).

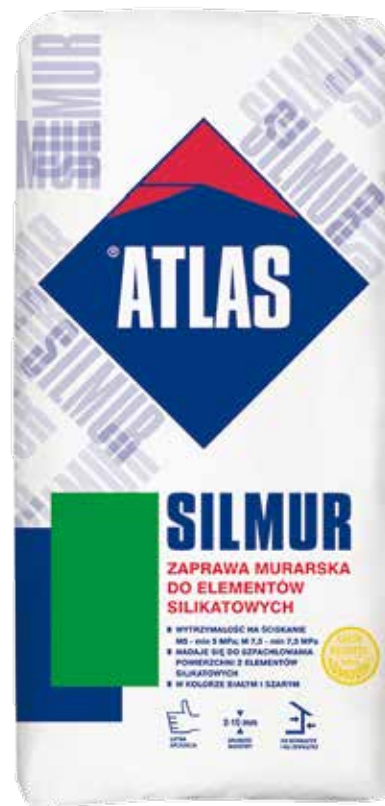
Used for surface floating and smoothing - with recommended coat thickness: 2-5 mm.

The main characteristics:

- white or grey in colour
- for surface floating
- four classes of compressive strength
- may be used in reduced temperatures (only SILMUR M-15)

The main parameters:

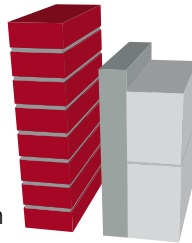
- layer thickness: 2 - 10 mm
- consumption: 4 kg/1 m² or wall 24 cm thick
- compressive strength: category M5, M7.5, M10, M15 (description on bags)



Examples of External Wall Constructions and U-values

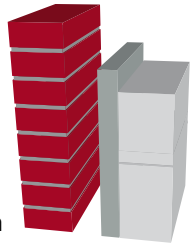
Partial fill cavity:

Brick outer leaf wall
Clear cavity 50 mm
Kingspan TW50, 50 mm
Ytong block 440 x 215 x 100 mm



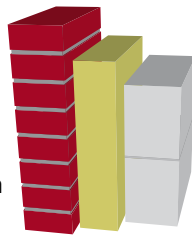
Partial fill cavity:

Brick outer leaf wall
Clear cavity 50 mm
Kingspan TW50, 40 mm
Ytong block 440 x 215 x 100 mm



Full fill cavity:

Brick outer leaf wall
Rockwool Dri Therm 32, 90 mm
Ytong block 440 x 215 x 100 mm



| 3.6 Standard block | 4.0 Standard block | 7.3 Hi Strength block |
|--|--|--|
| Total U-value 0,25 W/m ² K | Total U-value 0,26 W/m ² K | Total U-value 0,27 W/m ² K |
| Total U-value 0,28 W/m ² K | Total U-value 0,30 W/m ² K | Total U-value 0,31 W/m ² K |
| Total U-value 0,27 W/m ² K | Total U-value 0,28 W/m ² K | Total U-value 0,29 W/m ² K |

Extract from Ytong Aerated Concrete Product Guide p.6

