

Wi TROUGH LINTEL™ SYSTEM DATASHEET

Wi Trough Lintels by Wembley Innovation are designed to provide an alternative to heavyweight precast concrete lintels. Wi Trough Lintels integrate with blockwork walls, considerably improving finished appearance.

The patented Wi Trough Lintel U-blocks allow the construction of integral reinforced concrete lintels within blockwork construction, which eliminate the need for traditional heavyweight lintels.

Appearance and Configuration

The Wi Trough Lintel U-blocks are Paint Grade, manufactured from specially selected and prepared lightweight aggregates, giving a grey, close-textured finish.



Material Properties

Properties	100	140	190	215
Mean compressive strength of U-block	7.3 N/mm ²			
Net dry density of U-block	1450 kg/m ³			
U-block Unit weight (kg)	10.7	12.4	16.6	18.4
C40 Wi Mortar infill compressive strength	40 N/mm ²			
Dry weight of C40 Wi Mortar required (kg/m)	17	23	31	49
H16 B500C rebar yield stress	500 N/mm ²			
Wi Trough Lintel built weight (kg/m)	46.3	61.2	85.5	97.0
Reaction to fire	Classification to EN 13501-1: A1			

Note: unit and laid weights are approximate and calculated based on the specified dry density and moisture content.

Sizes and Tolerances

The Wi Trough Lintel U-blocks are available in the Standard UK format sizes. Face dimensions are 440mm x 215mm; widths are: 100mm, 140mm, 190mm and 215mm.

The Wi Trough Lintel U-blocks comply with Tolerance Category D1 of EN 771-3.

Authority

The Wi Trough Lintel U-block range is manufactured under a Quality Management System complying with ISO 9001. The blocks meet Category 1, Manufacturing Control, as specified in BS EN 1996-1-1: 2005.

Fire Performance

Typical fire resistance for the Wi Trough Lintels are based on the National Annex to BS EN 1996: (Parts 1 & 2)

Block Size	Loadbearing wall	Non-loadbearing wall
100	2 hrs	4 hrs
140	3 hrs	4 hrs
190	6 hrs	6 hrs
215	6 hrs	6 hrs

Note: the application of plaster will extend the period of fire resistance.

Sound Reduction

The calculated sound reduction of the Wi Trough Lintel construction has been assessed and indicated in the table below:

Block Size	Decibels (dB)	
100	47	(estimated)
140	53	
190	58	
215	60	

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Design

Design of the Wi Trough Lintels should be in accordance with recommendations of the "Design Guide for Masonry Reinforced by Bond Beams and Columns to Resist Lateral Load", based on BS EN1996-1 and Lucideon test results.

Wi Trough Lintels are designed as simply supported beams, spanning between supports. Minimum recommended bearing length for Wi Trough Lintels is 225mm (half a block).

Refer to Wembley Innovation Wi System Standard Details for further information.

Block Size (215 deep lintel)	ULS Moment (kNm)	ULS Shear (kN)	Safe UDL in kN/m for span (mm)							
			600	900	1200	1500	1800	2100	2400	3000
100	14.0	14.0	26.2	17.2	12.7	10.5	8.2	7.2	6.3	4.9
140	17.0	21.0	39.9	26.2	19.9	15.7	13.1	11.0	9.4	7.3
190	20.0	24.0	45.6	29.9	22.8	17.0	14.2	12.1	10.7	8.5
215	20.0	25.0	46.7	30.6	22.6	17.7	15.3	12.9	11.2	8.0

Note: If the conditions of BS 5977-1:1981 Lintels, are satisfied, then there is NO limit to the height of blockwork that can be constructed above the lintel.

Installation

Wi Trough Lintels are constructed in situ using the patented Wi Trough Lintel U-blocks, C40 Wi Mortar concrete, H16 B500C rebars, Wi Transfer Rods and Wi End Cleats, if required.

The construction of walls and Wi Trough Lintels should be in accordance with BS EN 1996: (1-1: 2005, 1-2: 2005) and 2: 2006) as well normal good practice. Refer to Wembley Innovation's Wi System User Manual for detailed installation guidance.

Key Benefits

- Effective replacement to traditional concrete/steel lintels.
- Maximum versatility during design and construction.
- No fire-boarding or paint treatments required – 4hr fire-rated
- Improved architectural performance and aesthetic appearance of walls
- Compliant with CDM manual handling guidelines
- Up to 23.6% Carbon reduction

Sustainability and Environment

By working closely with our suppliers and manufacturers, Wembley Innovation constantly strive to improve our approach to sustainability. This includes employing rail transport wherever possible, thus minimising lorry movements, reducing dependency on quarried virgin aggregates and maximising the use of waste, reclaimed, or recycled materials.

Wembley Innovation seek to increase the recycled content of their products, without comprising quality, when feasible.

Wi Trough Lintels components are REACH compliant.

Contact us for more information

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