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March 2017

catnic[®]

Thermally Broken Lintel Product Selector

March 2017



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BUILD IT BETTER WITH CATNIC

Catnic has pioneered the steel lintel for almost 50 years and designs, manufactures and supplies the construction industry with technically superior products.

Catnic was the first:

- Lintel manufacturer to be listed on the BRE Certified Thermal Details and Products scheme
- Lintel manufacturer to be certified to BES 6001, maximising the potential for obtaining credits under the Responsible Sourcing of Materials sections of BREEAM, the Code for Sustainable Homes and CEEQUAL
- To develop the steel lintel in the UK and the first to gain both BBA Approval and the coveted Kitemark to BS 5977
- Manufacturer to employ the revolutionary Duplex Corrosion Protection System on its lintel as a standard offering
- To incorporate a built-in damp proof course into its lintels
- To provide a built-in plaster key
- Was the first to CE mark its lintel product range



Far from just leading, over the years Catnic have worked with the BSI to establish the standards for lintels in this country and continue to develop and invest in improving on these standards with their extensive range of products and unique features.

TECHNICALLY SUPERIOR PRODUCTS

Catnic is committed to innovation and constant improvement to meet the changes in building regulations.

Leaders in Technical Innovation

Our rigid adherence to quality control & compliance is your guarantee of technical superiority.

Quality

Catnic are committed to quality control and is a BSI registered company with quality management systems in accordance with BS EN ISO 9001: 2015, which provide a set of processes that ensure:

- Clarification and documentation of policies and objectives
- Reduce waste relating to customers' requirements to production with a view to achieving customer satisfaction
- Understanding how statutory and regulatory requirements impact on Catnic and our customers
- Clear responsibilities and authorities - increasing motivation and commitment
- Consistency and traceability of products and services
- High level of internal and external communications



BS EN ISO 9001 : 2015
FM 14913

Material Specification

Catnic's standard lintels are manufactured from high quality grade galvanised steel to BS EN 10346: 2009 Z275, with a black coloured polyester resin finish.

Thermal Performance / Insulation

All Catnic lintels for traditional external cavity walls are supplied fully insulated. Insulation extends continuously along the full length of the lintel, leaving no potential thermal bridges and cannot be dislodged.

Structural Performance

The structural data published in the loading tables included in this technical guide, was achieved in accordance with the requirements BS EN 845-2: 2013.

Independent Testing

Extensive testing was undertaken at the following test houses:

- The University of South Wales, Commercial Services Centre for Engineering, Research and Environmental Applications (CEREA)
- BRE Building Research Establishment



Environment and Sustainability

Catnic are committed to protecting the environment by minimising the impact of our operations and our products through the adoption of sustainable practices and through continuous improvement in environmental performance and control.



BS EN ISO 14001 : 2015
EMS 555046

Regulatory authorities approval

Catnic's excellence is internationally recognised.

Catnic lintels have gained the approval of the regulatory authorities both in the domestic and international markets. Such wide-spread comprehensive approval is an assurance to designers, specifiers and builders of the reliability and state-of-the-art quality of the Catnic range.



BS EN 845-2 : 2013
KM 07234

BSI Kitemark

Catnic steel lintels have been awarded the BSI Kitemark license number **KM 07234**.



Fully Part L Compliant

Catnic steel lintels comply with Parts L1 and L2 of the Building Regulations Approved Documents. LABC in England and Wales.



BES 6001 Certification

Catnic lintels are the first of its type to have been certified as responsibly sourced from the iron ore supply to installation.



Local Authority Building Control (LABC)

Catnic steel lintels are compliant with current UK Building Regulations and therefore meet the requirements of the LABC in England and Wales.



National House-Building Council (NHBC)

Catnic steel lintels meet NHBC technical requirements.

THERMALLY BROKEN LINTEL SOLUTION

Catnic's latest innovation is the biggest evolution in steel lintel design for a generation. An elegant, simplistic design derived from extensive research and rigorous development testing.

Offering a sophisticated, practical solution to the latest changes in Building Regulations, Catnic's patent pending TBL range is the most thermally efficient steel lintel solution on the market.

Utilising the strength of steel combined with the thermal insulating properties of a high-density, fire retardant core, it's design provides the thermal performance of separate lintels, whilst offering users the same stable installations benefits of a traditional cavity wall lintel, providing:

- Industry leading linear thermal transmittance Psi values of 0.02 to 0.05 W/mK
- Safe working loads in line with Catnic's existing Cavity wall lintels
- Manufactured from powder coated galvanised steel
- Options are available to suit cavities from 90 to 165mm, in standard, heavy and extra heavy duty performance categories

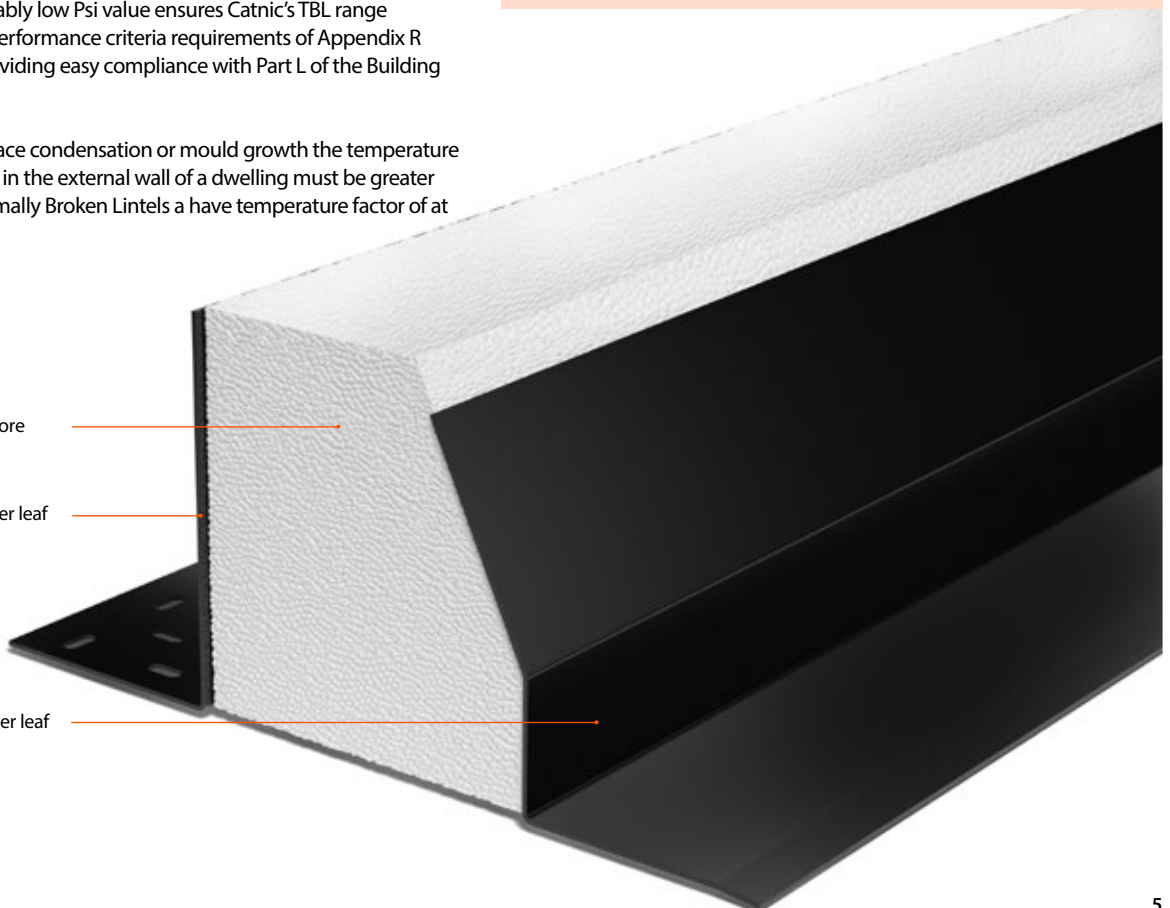
Achieving this remarkably low Psi value ensures Catnic's TBL range will always meet the performance criteria requirements of Appendix R found in SAP 2012 providing easy compliance with Part L of the Building Regulations.

To limit the risk of surface condensation or mould growth the temperature factor for a detail used in the external wall of a dwelling must be greater than 0.75. Catnic Thermally Broken Lintels have a temperature factor of at least 0.95.

High density insulating core providing thermal break

Powder Coated Steel inner leaf support bonded to core

Powder Coated Steel outer leaf support bonded to core



This unique design enables a complete thermal break between the inner and outer leaf of the cavity wall construction, results in outstanding thermal performance values of:

Psi value 0.02 to 0.05 W/mK

Independently verified by the Building Research Establishment. See www.bre.co.uk/certifiedthermalproducts for further details and certification.



THERMAL PERFORMANCE

The Fabric Energy Efficiency Standard (FEES) forms the foundations of the Building Regulations Part L 2013.

This focuses on the thermal performance for walls, roof and floors of the building, which have been continually improved with the revisions to the regulations.

Improving the thermal performance of the walls emphasises the increasing proportion of heat lost through thermal bridges in the building fabric such as lintels if these details are not improved. The heat lost through linear thermal bridges is called the Psi value and is measured in W/mK.

Replacing the traditional lintels with a Catnic Thermally Broken Lintel the heat loss through the window head detail can be reduced by up to 96%.

Existing default psi values for lintels as listed in BRE IP 1/06 are shown below: -

Junction detail in external wall	Default Psi value (W/m.K)
Steel lintel with perforated base plate	0.5
Other lintels	0.3

On a typical 4 bedroom house with a floor area of 57 m², the heat loss through a standard lintel can account for about 6%* of the overall heat loss through the fabric of the house. Using a Catnic Thermally Broken Lintel reduces this to 0.25% making it effectively insignificant.

* based on a default lintel psi value of 0.5 W/mK

SAP 2012 Appendix R

Part L of the Building Regulations has got progressively more complicated. To make it easier to comply an optional "standard recipe", based on the Part L 2013 Notional dwelling, has been introduced. A summary is shown in the table opposite, full details can be found in SAP 2012 Appendix R.

If you follow the standard recipe you will achieve the CO₂ and fabric energy efficiency targets to comply with Part L. The standard recipe requires a lintel Psi value of 0.05 W/mK. All Catnic Thermally Broken Lintels will provide Psi values of 0.05 W/mK or better.

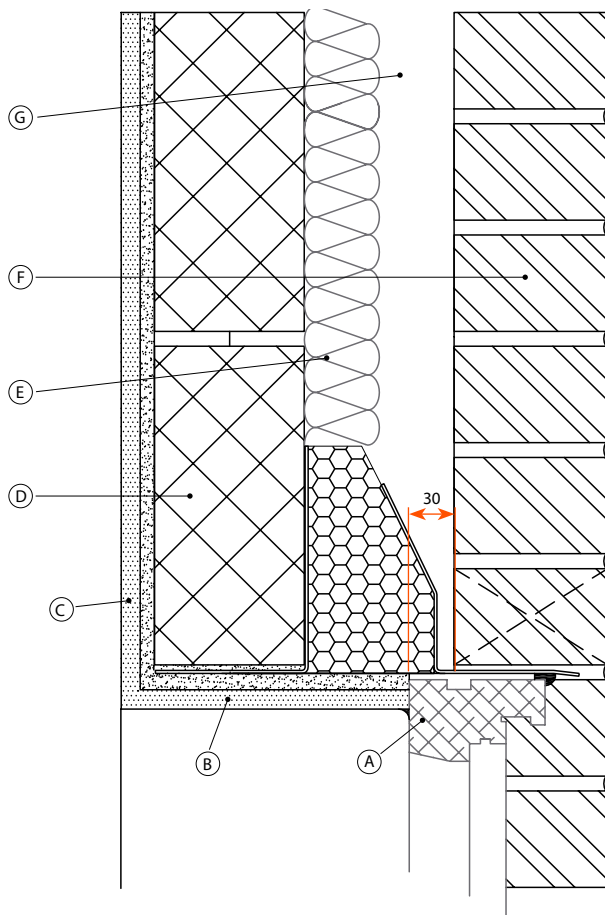
Summary of notional building requirements

Opening Areas	Same as actual up to 25% of floor area
Ext. Wall (W/m ² K)	0.18
Party Walls (W/m ² K)	0
Floor (W/m ² K)	0.13
Roof (W/m ² K)	0.13
Windows (W/m ² K)	1.4
Air Tightness	5
Non repeating thermal bridging	Standard Psi values from Appendix R of SAP
Ventilation Type	Natural (with extracts)
Gas Boiler	89.5%

Catnic have worked closely with the University of South Wales to develop and test both the thermal and structural properties of the TBL Range.



THERMAL PERFORMANCE

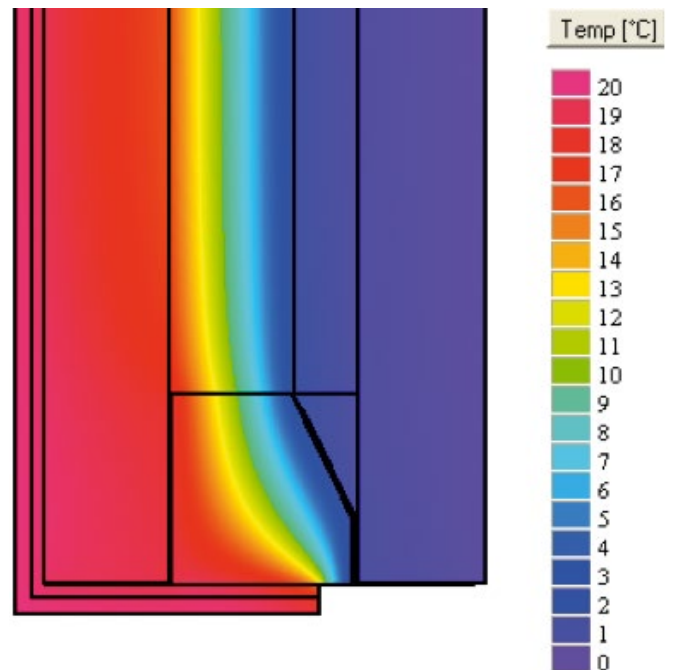


10mm airspace + Dabs [R = 0.11]
 $\therefore \lambda = 0.01/0.11 = 0.09\text{W/mK}$

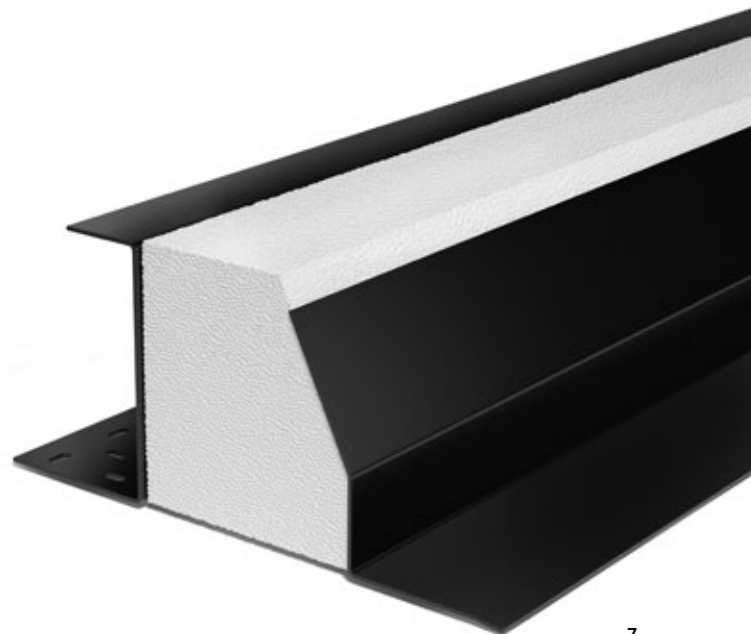
1.3	Materials	Thickness (mm)	λ Value (w/m.k)
A	Window frame	-	-
B	Plasterboard + Adhesive	12.5 10.0	0.19 0.09
C	Plasterboard on Dabs + Air Space	12.5 10.0	0.19 0.09
D	Blockwork	100	0.11
E	Insulation	As required	0.022
F	Brick	103	0.077
G	Residual Cavity	50	0.278
Lintel	Steel	-	52
	Insulation	-	0.034

Comment: Continuous band of adhesive to soffit area

Typical detail used for Thermal Modelling of the TBL Range



Two-dimensional temperature distribution, highlighting the effectiveness of the thermal break in the lintel.



STRUCTURAL PERFORMANCE

The Catnic Thermally Broken Lintel range has been developed to provide the exact same safe working loads capacity of the standard Catnic range of cavity wall lintels.

This allows a very simple conversion from the existing Catnic cavity wall range to the TBL range without having to re-assess the loads over the lintels.

The range has been designed to cover all building types from small domestic dwellings up to and including large apartment blocks with concrete floors.

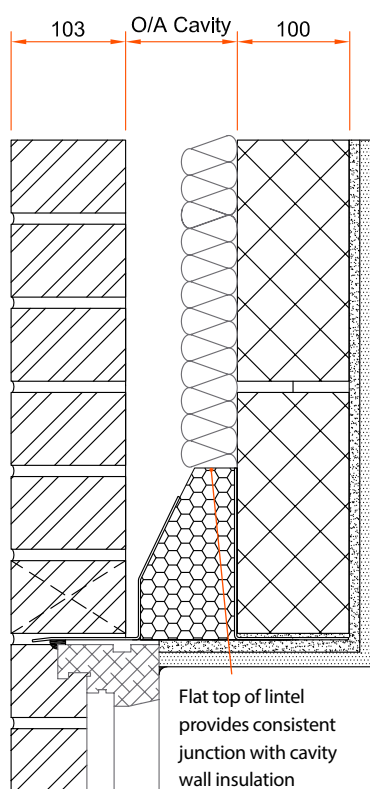
The composite design means the lintel is very stable during installation, allowing it to be installed in the same way as a standard steel lintel with no propping required.

Lintel design has been completed in line with EN 845-2. Structural Testing was carried out by the University of South Wales following EN 846-9. The University of South Wales is a Notified Testing Laboratory for the Testing of Lintels as required by the Construction Products Directive.



If you require further information please contact our Technical Services Department on

029 2033 7900



Performance Gap

In recent years, the housebuilding industry, government and Zero Carbon Hub have grown increasingly concerned over the potential gap between design and as-built energy performance.

The specifically designed flat top of Catnic's Thermally Broken Lintel provides a simple, consistent junction with the cavity wall insulation removing the reliance on site workmanship, ensuring as built performance of the junction meets the design performance.

There are NO brackets connecting the inner and outer leaf of the lintel and therefore there are NO additional point thermal bridges that need to be considered.

Benefits

Materials used in Lintels

The lintels are formed from galvanised steel, then powder coated

Duplex corrosion protection

Ensures optimum durability and longevity

Psi

Outstanding thermal performance
Psi value 0.02 to 0.05 W/mK exceeds Appendix R of SAP

Thermal Break

Unique design enables a complete thermal break between the inner and outer leaf of the cavity wall construction

Continuous insulation

Maximising thermal efficiency, minimising cold bridging

THERMALLY BROKEN LINTELS

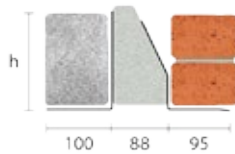
90-105mm Cavity 100-115mm Inner Leaf

All ratios are shown
inner to outer

Standard Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths from 3000mm to 3600mm.



TS90/100

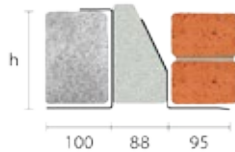
Standard lengths (mm)	750-1500	1650-1800	1950-2100	2250-2400	2550-2700	2850-3600
SWL 1:1/3:1 (kN)	15	18	20	22	26	26
Weight (kg/m)	7.9	11.8	11.8	15.7	15.7	16.7
Nominal height 'h' (mm)	153	202	202	233	233	229*

* channel to inner leaf

Heavy Duty



Standard lengths are available in 150mm increments.



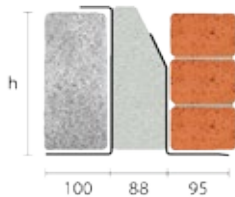
TH90/100

Standard lengths (mm)	900-1800	1950-2100	2250-2400
SWL 1:1/19:1 (kN)	32	48	45
Weight (kg/m)	13.3	16.7	16.7
Nominal height 'h' (mm)	154	229	229

Extra Heavy Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths 3000mm to 4800mm (including 4575mm, but excluding 4500mm).



TX90/100

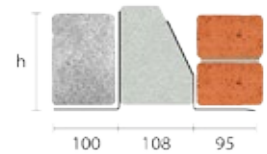
Standard lengths (mm)	900-2100	2250-2700	2850-3000	3300-3600	3900-4800
SWL 1:1/19:1 (kN)	60	60	55	50	32
Weight (kg/m)	16.7	21.6	21.6	21.6	21.6
Nominal height 'h' (mm)	229	229	229	229	229

110-125mm Cavity 100-115mm Inner Leaf

Standard Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths from 3000mm to 3600mm.



TS110/100

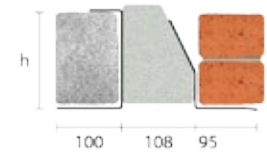
Standard lengths (mm)	750-1500	1650-1800	1950-2100	2250-2400	2550-2700	2850-3600
SWL 1:1/3:1 (kN)	15	18	20	22	26	26
Weight (kg/m)	8.0	11.9	11.9	15.8	15.8	16.9
Nominal height 'h' (mm)	153	202	202	233	233	229*

* channel to inner leaf

Heavy Duty



Standard lengths are available in 150mm increments.



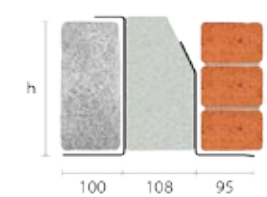
TH110/100

Standard lengths (mm)	900-1800	1950-2100	2250-2400
SWL 1:1/19:1 (kN)	32	48	45
Weight (kg/m)	13.4	16.9	16.9
Nominal height 'h' (mm)	154	229	229

Extra Heavy Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths 3000mm to 4800mm (including 4575mm, but excluding 4500mm).



TX110/100

Standard lengths (mm)	900-2100	2250-2700	2850-3000	3300-3600	3900-4800
SWL 1:1/19:1 (kN)	60	60	55	50	32
Weight (kg/m)	16.9	21.7	21.7	21.7	21.7
Nominal height 'h' (mm)	229	229	229	229	229

i The SWL (safe working load) is based on the total UDL (uniform distributed load) over maximum span using 150mm end bearings.

Concrete Floor Loads

When using the Catnic **TH** and **TX** open back ranges with concrete floors, always ensure that the blockwork is built tight against the inner vertical face of the lintel and that a mortar joint is added to the top of the blockwork so that the floor units have an even spread over the inner flange of the lintel.

Note: To achieve the **'TH** and **'TX** loading figures indicated, lintels must be built-in as illustrated, ensuring that the blockwork infill is well-jointed during construction and compatible with the strength of the masonry above.

THERMALLY BROKEN LINTELS

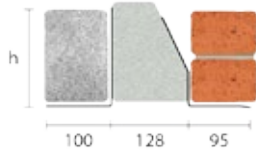
130-145mm Cavity 100-115mm Inner Leaf

All ratios are shown
inner to outer

Standard Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths from 3000mm to 3600mm.



TS130/100

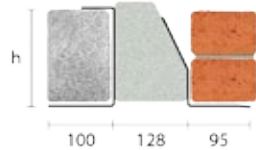
Standard lengths (mm)	750-1500	1650-1800	1950-2100	2250-2400	2550-2700	2850-3600
SWL 1:1/3:1 (kN)	15	18	20	22	26	26
Weight (kg/m)	8.1	12.0	12.0	16.0	16.0	17.0
Nominal height 'h' (mm)	153	202	202	233	233	229*

* channel to inner leaf

Heavy Duty



Standard lengths are available in 150mm increments.



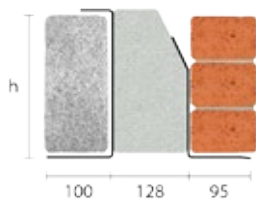
TH130/100

Standard lengths (mm)	900-1800	1950-2100	2250-2400
SWL 1:1/19:1 (kN)	32	48	45
Weight (kg/m)	13.5	17.0	17.0
Nominal height 'h' (mm)	154	229	229

Extra Heavy Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths 3000mm to 4800mm (including 4575mm, but excluding 4500mm).



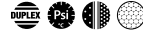
TX130/100

Standard lengths (mm)	900-2100	2250-2700	2850-3000	3300-3600	3900-4800
SWL 1:1/19:1 (kN)	60	60	55	50	32
Weight (kg/m)	17.0	21.9	21.9	21.9	21.9
Nominal height 'h' (mm)	229	229	229	229	229

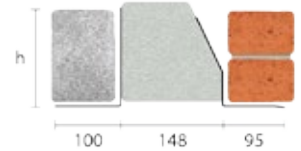
150-165mm Cavity 100-115mm Inner Leaf

All ratios are shown
inner to outer

Standard Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths from 3000mm to 3600mm.



TS150/100

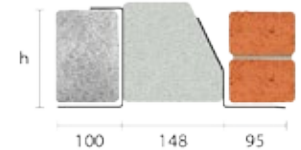
Standard lengths (mm)	750-1500	1650-1800	1950-2100	2250-2400	2550-2700	2850-3600
SWL 1:1/3:1 (kN)	15	18	20	22	26	26
Weight (kg/m)	8.2	12.2	12.2	16.1	16.1	17.1
Nominal height 'h' (mm)	153	202	202	233	233	229*

* channel to inner leaf

Heavy Duty



Standard lengths are available in 150mm increments.



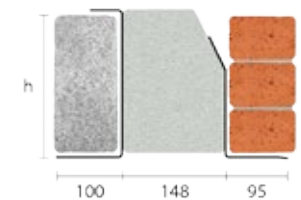
TH150/100

Standard lengths (mm)	900-1800	1950-2100	2250-2400
SWL 1:1/19:1 (kN)	32	48	45
Weight (kg/m)	13.6	17.1	17.1
Nominal height 'h' (mm)	154	229	229

Extra Heavy Duty



Standard lengths are available in 150mm increments up to 3000mm, 300mm at lengths 3000mm to 4800mm (including 4575mm, but excluding 4500mm).



TX150/100

Standard lengths (mm)	900-2100	2250-2700	2850-3000	3300-3600	3900-4800
SWL 1:1/19:1 (kN)	60	60	55	50	32
Weight (kg/m)	17.1	22.0	22.0	22.0	22.0
Nominal height 'h' (mm)	229	229	229	229	229

i The SWL (safe working load) is based on the total UDL (uniform distributed load) over maximum span using 150mm end bearings.

Concrete Floor Loads

When using the Catnic **TH** and **TX** open back ranges with concrete floors, always ensure that the blockwork is built tight against the inner vertical face of the lintel and that a mortar joint is added to the top of the blockwork so that the floor units have an even spread over the inner flange of the lintel.

Note: To achieve the **'TH** and **'TX** loading figures indicated, lintels must be built-in as illustrated, ensuring that the blockwork infill is well-jointed during construction and compatible with the strength of the masonry above.

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