



Passive House window system

EnergyPlus90 with PAS24 and unparalleled acoustics



Background

In 2015, the UK Government announced major plans to build 200,000 starter homes by 2020 – with close to a million homes overall within the same period. These homes are likely to be built on brownfield land in urban areas, often near busy roads and rail lines.

A study of roads in November 2016 showed that British roads are the most congested in Europe.

In addition, the building of a new high speed rail network (HS2) combined with a proposed new third runway at the already busy London Heathrow Airport are anticipated to add to the already high noise levels in urban areas throughout the UK.

Architects, developers and consumers are already asking for greater acoustic values in their window systems to help combat these increasing levels – but not at the expense of thermal efficiency or security.

Buildings designed to the Passive House (original German “Passivhaus”) standard are becoming more popular, to help conserve precious energy resources.

Developed in Germany in the early 1990s, houses built to Passivhaus standards utilise materials with excellent thermal performance, providing exceptional airtightness with mechanical ventilation.



Category: Window frame
 Manufacturer: HL Plastics Ltd, trading as Linlar, Derby, United Kingdom
 Product name: Energy Plus 90

This certificate was awarded based on the following criteria for the cool, temperate climate zone

Comfort $U_{g, \text{window}} \leq 0.80 \text{ W/(m}^2 \text{K)}$
 $U_{g, \text{window}} \leq 0.85 \text{ W/(m}^2 \text{K)}$
 with $U_{g, \text{window}} \leq 0.70 \text{ W/(m}^2 \text{K)}$

Hygiene $f_{\text{air}, 25} \geq 0.70$

Passive House efficiency class: pH-E, pH-D, pH-C, pH-B, pH-A

www.passivehouse.com

EnergyPlus⁹⁰



A+40 (triple)

0.7 W/m²K (triple)

0.5 W/m²K (quad)

EnergyPlus⁹⁰ from Liniar now joins an elite band of window systems able to comply with the exacting Passive House standards.

Many other systems feature messy and time-consuming foam-filled cavities to meet the requirements.

EnergyPlus⁹⁰ is unique in that its 9-chamber profile – 3 more chambers than Liniar EnergyPlus – has been designed to meet the triple challenges of **thermal efficiency, noise reduction** and **security**.

✓ Passive House

Early testing has resulted in Liniar EnergyPlus⁹⁰ joining the ranks of a select few window products to claim Passive House certification - component id: 1014wi03 & 1015fx03.

Triple glazed whole window U-values for argon-filled triple glazed units are as low as 0.7 W/m²K with Window Energy Ratings up to A+40, even with laminate included. Quadruple glazed whole window U-values are as low as 0.5W/m²K.

You can find details at: <http://database.passivehouse.com/en/components/list/window>.

✓ Weather Testing

Weather testing carried out on a full-sized EnergyPlus⁹⁰ window has surpassed BS6375 requirements.

Water class E1050 (91mph) 1050Pa

Deflection load - 2000Pa (126mph)

Safety load - 3000Pa (155mph)

✓ Acoustic Testing

With acoustic values as high as $R_w (C;Ctr) = 42 (-2;-6)$, EnergyPlus⁹⁰ offers a unique proposition for commercial developers.

✓ PAS24:2016 and Secured by Design

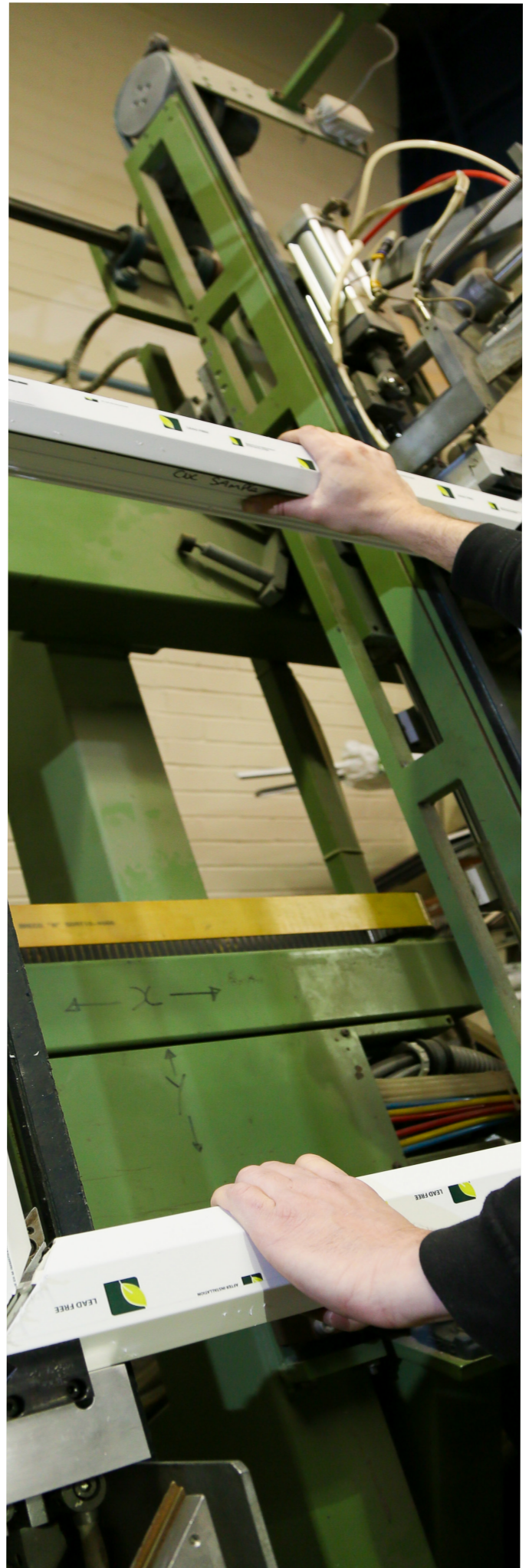
With a whole window fully tested to the stringent security requirements of PAS24:2016, the EnergyPlus⁹⁰ window is also fully compliant with Part Q building regulations – critical for the commercial and new build sectors. As a result, EnergyPlus⁹⁰ has also achieved Secured by Design accreditation.



EnergyPlus90

at a glance...

- Passive House compliant with laminate glazing included.
- Triple glazed window U Values as low as $0.7 \text{ W/m}^2\text{K}$, quadruple glazed as low as $0.5 \text{ W/m}^2\text{K}$ and a WER as high as A+40.
- Secured by Design accredited.
- Acoustic values as high as $R_w (C;Ctr) = 42 (-2;-6)$.
- 9 chamber design.
- Featuring the patented Liniar bubble gasket and glazing flipper.
- Utilises standard Liniar chamfered and sculptured beads and glazing platforms.
- 48mm & 56mm triple glazing options.
- PAS24:2016 accredited.
- BS6375 parts 1,2 & 3 accredited.
- Suitable for use with heavy duty hinges and hardware.
- No steel reinforcement required (up to 1500 transom/mullion).
- Sight lines, frame cover and clearances similar to EnergyPlus (looks and operates as a 70mm system).







Glazing options

Most PVCu window systems are limited to 40mm glazing options – however EnergyPlus90 offers triple glazing as standard, in a choice of 48mm or 56mm units.

There are almost endless combinations of glazing available for EnergyPlus90, to suit every type of installation. Triple glazed units can incorporate Pilkingtons Optiphon or Saint Gobain Stadip Silence acoustic glass if high acoustic values are important to your customer.



Option 1 - (56mm glazing, 6,8A - 22 - 4 - 20 - 4 Argon Filled)

		Acoustic Rw $R_w = (C;Ctr) = 42 (-2;-6)$	WER A+40	U-value 0.70 W/m ² K
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Option 2 - (48mm glazing, 6,8A - 18 - 4 - 16 - 4 Argon Filled)

	Acoustic Rw $R_w = (C;Ctr) = 42 (-2;-6)$	WER A+32	U-value 0.74 W/m ² K
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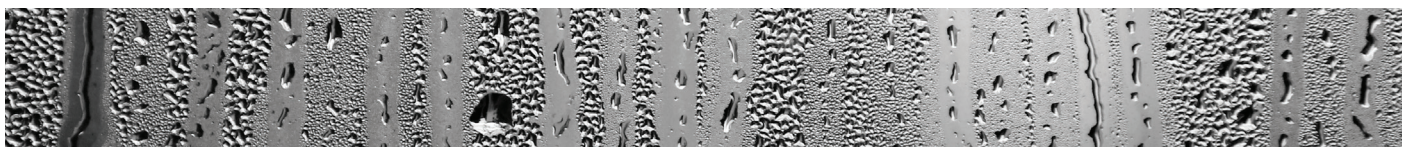
Option 3 - (48mm glazing, 8,8A - 16 - 4 - 14 - 6 Argon Filled)

	Acoustic Rw $R_w = (C;Ctr) = 40 (-1;-5)$	WER A+27	U-value 0.79 W/m ² K
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Option 4 - (48mm glazing, 4 - 18 - 4 - 18 - 4 Argon Filled)

	Acoustic Rw $R_w = (C;Ctr) = 36 (-2;-6)$	WER A+39	U-value 0.71 W/m ² K
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For reference: A standard 28mm unit in a generic 70mm PVCu frame would achieve an acoustic value of $R_w(C;Ctr) = 33 (-1;-5)$. An R_w increase of 5dB halves the audible sound transmittance through a component.



Colour options

EnergyPlus90 is available in a range of colours:



White



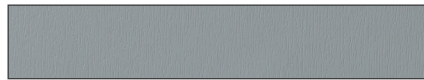
Cream



7016 Grey



7038 Grey



7155 Grey



7012 Grey



Black Brown

EnergyPlus90 doors

EnergyPlus90 can be used with a 68mm composite door blank and featuring a thermally broken low threshold can achieve U-values as low as 0.89 W/m²K.

EnergyPlus90 doors will be available in a range of styles, including composite entrance and French doors.



7 great reasons to choose Liniar

Innovative – the only entirely new PVCu window and door profile system to be developed in the last 10 years

Energy efficient – designed from scratch to achieve the pinnacle of thermal performance and retain more heat in your property

Safe and secure – engineered with built-in security features and approved by independent testing facilities

British made – manufactured in our state-of-the-art factory in the heart of Derbyshire

Lead free – all Liniar profiles are extruded using materials that are 100% lead free

Quality assured – backed with ISO 9001 accreditation for your peace of mind

Guaranteed – all Liniar frames are guaranteed to not warp, split or discolour for a minimum of 10 years



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