



innovative german solutions

by **asn** international



Innovative Solutions

# uPVC WINDOWS

## YOUR PERFECT CHOICE

Energy efficient window & doors with aluplast-technology





 quality | made in germany



**ASN INTERNATIONAL CO Ltd** stands for the highest quality uPVC products providing the best innovative solutions, extensive knowledge and prime service for customers.

**ASN INTERNATIONAL** specializes in trading uPVC profiles of aluplast, in manufacturing & installation uPVC windows and doors by applying German technology and is the official aluplast distributor for Vietnam and Cambodia. The quality of our products speaks for itself with our German technology being used worldwide for the past 30 years. Our window profile systems and accessories are directly imported from Germany to offer the highest quality in accordance to German standard.

**ASN INTERNATIONAL** - your best choice for innovative solutions.

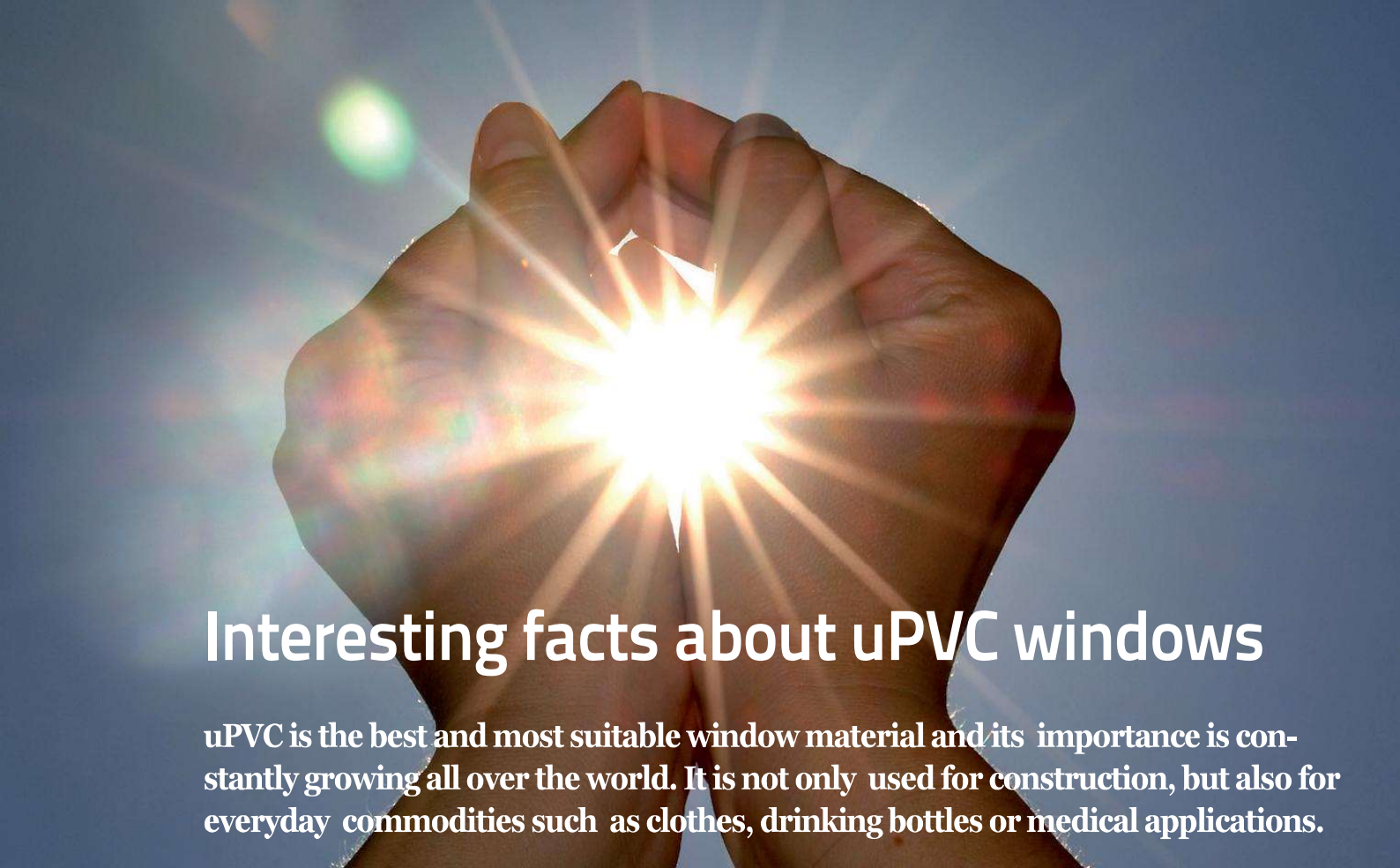


Come with us on a  
journey through the  
**world of uPVC windows**  
and discover their  
shapes, colours, quality  
and energy efficiency.

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# Interesting facts about uPVC windows

**uPVC is the best and most suitable window material and its importance is constantly growing all over the world. It is not only used for construction, but also for everyday commodities such as clothes, drinking bottles or medical applications.**

The unparalleled material „PVC“ offers a whole range of outstanding product properties for a window that remains unbeaten by any other raw material. Furthermore, purchase costs of uPVC windows are far more economical than for a comparable product made of wood or aluminium.

There are great many of aspects that play a significant role when choosing new windows. For this reason, we would like to present you some interesting facts about uPVC windows that will help you with your decision making:

## 1. ENERGY EFFICIENCY OF UPVC WINDOWS

- use of lead-free uPVC raw material
- easy to recycle which preserves the nature, especially the tropical forests
- energy saving (a real energy champion)

## 2. QUALITY OF UPVC WINDOWS

- uPVC is completely harmless for humans
- excellent sound insulation, especially in the growing urban regions
- perfect thermal insulation
- durability and resistance (fire resistance, UV stability, wind resistance)
- the value of your home can be increased by integration of aluplast windows and doors
- very durable (uPVC windows have a life cycle of 30 years or more)

## 3. PERFORMANCE CHARACTERISTICS OF UPVC WINDOWS

- resistant to dirt and environmental conditions
- can be easily cleaned by using a mild detergent or simply soapy water
- resistant against termites and do never rot, rust or corrode
- cannot be deformed by moisture and temperature differences
- prevent development of diseases caused by mould and bacteria
- efficient for many years (without recurrent effort of conservation by painting or special maintenance measures)
- protect the occupant because of their excellent burglary resistance

## 4. VARIETY OF DESIGNS

- appealing visual appearance with various types
- different shapes, e. g. semi-circular windows
- available in countless colour variations, laminated outside or on both sides
- suited for both new buildings and renovation of old buildings
- customised for individual requirements

### ! Please note

Windows are no minor matter: They let the light into our homes and thus illuminate our lives and create the positive feeling of being at home.





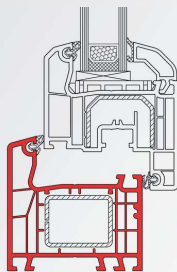
3-dimensional  
section of a  
uPVC window

Front view  
of a uPVC  
window



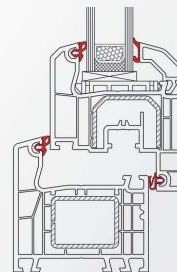
## How is the uPVC window constructed?

The detailed section the single components of a uPVC window



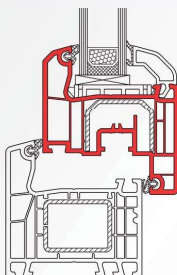
### WINDOW FRAME

holds the window sash and serves to fasten the window to the building structure.



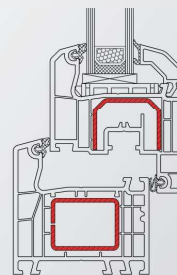
### GASKETS

co-extruded gaskets ensure an improved heat and sound insulation.



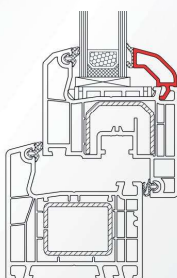
### WINDOW SASH

is the movable element which allows you to open and close the window.



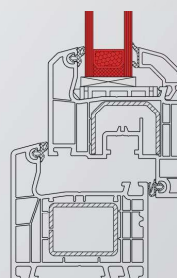
### STEEL REINFORCEMENTS

are integrated into the window frame and sash to ensure maximum load bearing capacity.



### GLAZING BEADS

are inserted into the window sash and serve to fix the glass pane.



### GLAZING

protects you from external influences whilst still allowing the view to the outside.

# Window types there is something for every taste

Window and door types are distinguished by their way of installation and opening:



## **FIXED GLAZING**

The glazing is inserted directly into the frame – there is no sash that could be opened.



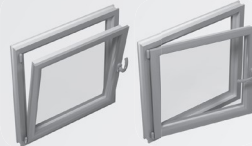
## **TURN FUNCTION - OPENING INWARDS**

The window can be opened to the inside.



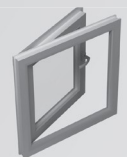
## **TILT FUNCTION - OPENING INWARDS**

The window can be tilted to ventilate your room but protect.



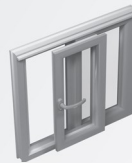
## **TILT-AND-TURN FUNCTION**

The window can be opened to the inside and it can be tilted.



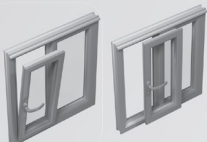
## **CASEMENT - OUTWARD OPENING**

The sash is to be opened outwards.



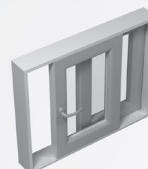
## **SLIDING WINDOW**

The sash can be slid to the side to open the window.



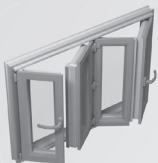
## **TILT-AND-SLIDE WINDOW**

The sash can be tilted and slid to one side to open the window.



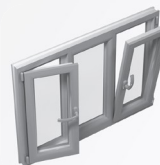
## **LIFT & SLIDE**

The sash is lifted by moving and ensures a much better sealing than a sliding window.

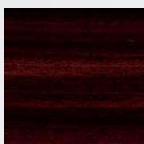
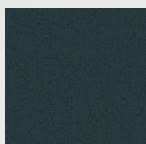
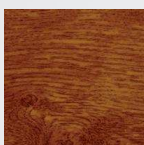
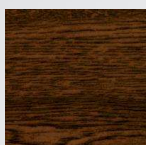


## **FOLDING WINDOW**

The sashes can be folded, each running along a runner rail.



Many combinations available



## **UPVC WINDOWS ARE NOT NECESSARILY WHITE**

Color your life and choose your favorite of various colors. The system provider uses a special manufacturing technique to apply the decor lamination foil on the uPVC window profiles. This technique guarantees an even structure, a uniform color as well as maximum weather resistance and it meets the highest requirements regarding climatic influences.

# Product range lots of possibilities

**Windows are a long-lasting investment. For this reason you should select a product that can really satisfy your requirements.**

**See and convince yourself:**



## **IDEAL 2000®**

IDEAL 2000® is the most substantial 3 to 4-chamber window system with two levels of sealing and a 60mm construction depth. The window offers the best possible price-performance ratio and a perfect economic efficiency. It is the right window solution for fixed, tilt-and-turn and casement openings. Many possible variations allow for the use of the system in the domain of commercial buildings as well as private homes.



## **IDEAL 4000®**

With 5 chambers as a standard combination, sound insulation up to 45 dB and a construction depth of 70 mm, the IDEAL 4000® windows offer excellent thermal insulation properties – delivering a range of windows today which satisfies the standards of tomorrow. It is the best suitable window also for huge doors for balconies and terraces.



## **SLIDING SYSTEMS**

The aluplast sliding window series with its slender design to meet your individual requirements. From economical window solutions to huge balcony doors, a lot of options are possible.



## **LIFT-AND-SLIDE DOOR 85 MM**

With its smooth-running lifting mechanism, even huge sliding elements – with a width of up to 3 m, a construction depth of 85mm and with large reinforcements for the highest degree of stability – can be moved very easily. The wide opening provides a harmonious transition from living- to outdoor area without disturbing steps and best sealing values.



# Lift-and-slide door



## Entering a new modular dimension

The modular system is a first in this segment: One single system allows for the manufacture of three different products with different thermal insulation properties, from elements meeting only basic insulation requirements to passive house suitable lift-and-slide doors.

Whichever design you choose, the product visually harmonizes with the other aluplast systems and forms an appealing and harmonious image in your rooms.

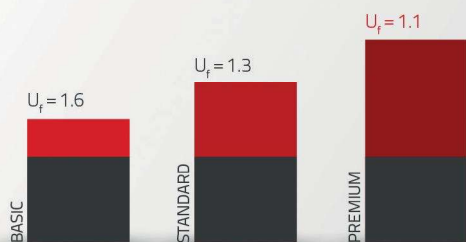




#### 4 PRODUCT PORTFOLIO

## Lift-and-slide door 85 mm profile depth

- improved insulating properties
- threshold and guide rail according to module in either aluminium or GRP
- glass and panel thicknesses up to 51 mm possible
- integrated sealing for highest product quality
- available in numerous decor variations
- available with aluskin® aluminium shells



1 system - 3 products  
- Basic  
- Standard  
- Premium



# Sliding windows



## Stylish views

Enjoy the most beautiful views from your living spaces and let them brighten up your life. The aluplast sliding window series can be designed individually according to your needs and ideas.

Bring your own personal touch into your home and experience the new living comfort.



## mono-rail

- Glazing thickness up to 8 mm
- unique sliding window solution with fixed and movable parts
- wide range of accessories available due to standardised 60 mm frame system
- integrated PVC interlock guarantees perfect tightness
- fanlights and different window combinations possible



## sliding window 60 mm

- glazing thickness up to 20 mm
- fine profile design
- Steel reinforcements inside the profiles ensure high stability even of large elements
- the use of appropriate security hardware guarantees perfect protection against burglary
- available in numerous decor variations

## multi-sliding

- glazing thickness up to 32 mm
- extension profiles for multi-track sliding windows available
- excellent structural values allow for large elements
- aluminium threshold with integrated drainage system
- easy installation
- available in numerous decor variations



# Hardware - essential background

Hardware has a wide range of functions. It connects the window casement with the sash and therefore allows for the movement of the sash. For this reason, we would like to present you some interesting facts about Hardware in uPVC windows that will help you with your decision making:



## **SASH LIFTER**

Tilt-and-turn hardware lifts the sash into the correct position with minimal effort and guarantees a long service life.



## **LOCKABLE HANDLE**

When it comes to security the first choice is a lockable handle. This locking mechanism additionally increase a window's or door's security.



## **TURNING HANDLE**

The essential operating control of a window fitting is the turning handle. Only a turn of the handle can open, close, tilt or fold the window or door.



## **MULTIPOINT LOCKING**

Increased security thanks to multipoint locking system. The system guarantees basis security.

Based on the great variety of windows there are hardware systems for the most different window types. The hardware is a significant component of the window, especially for handling and security. The hardware for the most common European tilt and turn systems offers the best safety, security and comfort for your home. However, good hardware for casement and sliding systems is also available.

## **! Please note**

We will be happy to show you further and more detailed information on hardware.



# Glazing - a visible part of the window

**The importance of a window glass has also been integrated in your window choice. Many solutions are available:**

## **TINTED GLASS**

Colorants added to the basic glass batch that gives the glass color, and reduces the transmission of light through it. The color extends throughout the thickness of the glass.

## **TEMPERED GLASS**

A type of safety glass processed by controlled thermal or chemical treatments to increase its strength compared with normal glass. Fully toughened glass is approximately 4 to 5 times stronger than heat treated glass of the same thickness when exposed to uniform static pressure loads.

## **LAMINATED GLASS**

Two or more panels of glass permanently bonded together with one or more interlayer. It offers good acoustic insulation and a high protection against burglary.

## **DOUBLE GLAZING**

Double or even triple glass window panels separated by an air or other gas space like Argon to reduce heat transfer and / or sound transmittance across a part of the building envelope. In insulated glass units the space between the glass panes is thoroughly dried and the edges are sealed to eliminate possible condensation and provide superior insulating properties.

## **LIGHT ADMISSION**

Indicates the amount of visible light transmitted. The higher the visible transmittance, the more light is transmitted.

## **SOLAR HEAT GAIN COEFFICIENT**

The amount of directly transmitted and absorbed solar energy that enters the building's interior (when compared to an open space). The coefficient should be as low as possible.

## **! Please note**

The solar heat gain coefficient should be as low as possible while the light admission should be as high as possible. We will be pleased to help you making your best decision.



# Noise reduction - feel the silence & the comfort

Open Window  
(heavy traffic) ~ 80 dB

Old Window  
(single glazed) ~ 60 dB

Standard Window  
(double glazed) ~ 48 dB

uPVC Window  
(Ideal 4000) ~ 35 dB

## Influencing Factors

1. Frame
2. Glazing
3. Glass Packers
4. Installation

## ! Please note

Reduction of  
10 dB (dezibel)  
will reduce your  
felt noise of 50 %

## NOISE PROTECTION

Being exposed to permanent or even only to a short-term but intensive noise can lead to a harmful impact on human health. Thus, noise protection is an imperative. We can provide you the best possible protection against unwanted negative noise effects.



# Sound insulation - for a better quality of life

dB (dezibel) is commonly used in acoustics to quantify sound levels perceived by the human ear.

Noise has an immense impact on our quality of life. The results are sleep loss and continuous stress that can cause permanent damage to

our health. uPVC windows are an effective protection from noise and create a permanently pleasant atmosphere.

## Health Impacts

Hearing impairment  
caused by short impact

Hearing impairment  
caused by continuing  
noise

Concentration  
distrurbances

Threshold of hearing

|        |                      |
|--------|----------------------|
| 140 dB | Starting aircraft    |
| 130 dB |                      |
| 120 dB |                      |
| 110 dB | Jackhammer           |
| 100 dB |                      |
| 90 dB  | Highway traffic      |
| 80 dB  | Open window          |
| 70 dB  |                      |
| 60 dB  | Single glazed window |
| 50 dB  | Insulation glass     |
| 40 dB  | Normal conversation  |
| 30 dB  | uPVC window          |
| 20 dB  |                      |
| 10 dB  | Bedroom              |
| 0 dB   |                      |





## Energy efficiency - living comfort and environmental protection

Innovative high-quality uPVC windows cut energy losses to a minimum. With uPVC windows you can contribute to the conservation of the increasingly scarce resources and to the reduction of pollutant emissions. Combine environmental protection and living comfort by insulating with uPVC windows.

The U-value determines the heat transfer coefficient of the material. The w in this term stands for the entire window.

The calculation of this is based on the U-values and the sizes of each single material of all components. This means the glass, the frame material as well as the psi-value, which describes the heat flow generated through the insulated glass edge with the distance piece.

### ! Please note

The lower the U-value, the better!

$$U_w = \frac{U_g \cdot A_g + U_f \cdot A_f + \Psi (PSI) \cdot l}{A_g + A_f}$$

### U-Value (Uw)

= U-value glazing (Ug) \* Area glazing (Ag)  
 + U-value frame (Uf) \* Area frame (Af)  
 + Psi-value (Ψ) \* length of the edge bond (l)  
 / Area glazing (Ag) + Area frame (Af)



# Inner values save costs

## Energy-saving calculations [Examples]

### RIO DE JANEIRO / BRASIL:

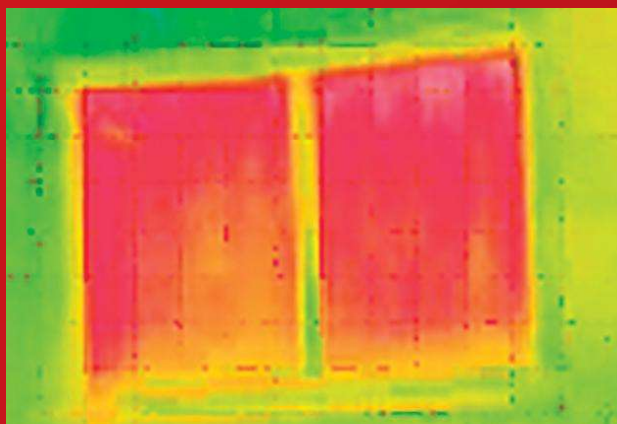
Savings/first year\*: 790.62 EUR

Savings after 20 years: 26,142.64 EUR

\* Assumption: window area of 30 m<sup>2</sup>,  
0.10 €/kWh, price increase: 5 % p. a.

Not only is the construction depth of a window crucial to save energy – it is also the inner value of a window that is convincing. The developing of isotherms demonstrates the significant improvement in the insulation quality:

### SINGLE GLAZING WINDOW



### MELBOURNE / AUSTRALIA:

Savings/first year\*: 865.11 EUR

Savings after 20 years: 28,605.79 EUR

\* Assumption: window area of 50 m<sup>2</sup>,  
0.18 €/kWh, price increase: 5 % p. a.

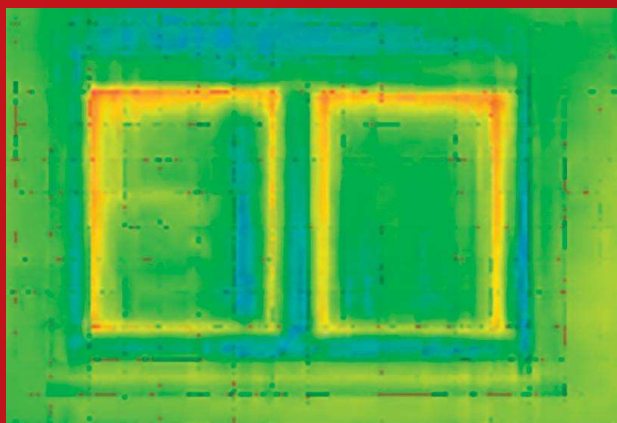
### DUBAI / UNITED ARAB EMIRATES:

Savings/first year\*: 1,130.61 EUR

Savings after 20 years: 37,384.78 EUR

\* Assumption: window area of 30 m<sup>2</sup>,  
0.07 €/kWh, price increase: 5 % p. a.

### UPVC WINDOW SYSTEM IDEAL 4000® INSULATING GLAZING



### CAPE TOWN / SOUTH AFRICA:

Savings/first year\*: 416.90 EUR

Savings after 20 years: 13,785.23 EUR

\* Assumption: window area of 40 m<sup>2</sup>,  
0.12 €/kWh, price increase: 5 % p. a.

### MUMBAI / INDIA

Savings/first year\*: 1,001.32 EUR

Savings after 20 years: 33,109.55 EUR

\* Assumption: window area of 25 m<sup>2</sup>,  
0.08 €/kWh, price increase: 5 % p. a.

### **IDEAL 4000®**

**( $U_w = 1.1 \text{ W/m}^2\text{K}$ ) compared to a single glazing aluminum window ( $U_w = 5.2 \text{ W/m}^2\text{K}$ ) Based on the different local specifications like room size or weather conditions, your savings may vary from the examples.**

These examples are based on conditionally assumptions and history based weather conditions, like heating and cooling degree days. We can not take a guarantee for the example data provided.





## Unique selling propositions

### **QUALITY - MADE IN GERMANY**

Experience and a constant development play a crucial role in the production of uPVC windows. With close and cooperative partnerships with reliable and renowned window manufacturers, aluplast focuses on environmental protection and sustainability and guarantees a maximum in quality and accuracy.

The extruded aluplast uPVC window profiles are tested according to German standard and are subject to constant quality control.

### **RESPONSIBILITY - FOR THE ENVIRONMENT**

uPVC windows do not only present a long-lasting durability but they can also be recycled which is another environmental advantage.

Plastics are up to 100% recyclable without loss of quality. Due to the fact that PVC windows are produced environmentally friendly, the PVC windows can be made out of recyclable material and can be re-used in the future to extend the lifecycles.

As energy losses of the housing are mainly (40%) arises around the window and door area, these parts of the building envelope are being in the focus of the efforts to save valuable energy and reduce the costs for heating and/or cooling. The uPVC windows of aluplast profiles are suitable even for the top ranked Passivhaus-Standard.

This fact ensures lowest energy consumption. Also our profiles are in compliance to the latest Environmental Product Declaration (EPD) according to the DIN ISO 14025 which reflects the superb results of the health – and environmental aspects of the uPVC in the whole life circle.

### **INNOVATION - AT THE HIGHEST LEVEL**

Based on our expertise, we develop innovative high-quality products that set professional standards in our branch. aluplast meets today's requirements as heat and noise insulation, burglary resistance and an elegant design. To buy our products is to buy long lasting durability and to choose finest quality and a solid company with many years of experience.

Save energy, reduce costs and secure the future - with aluplast.



# aluplast – the system provider

The company aluplast was founded in 1982 by Manfred J. Seitz. Flexibility, a fast decision-making process, great emphasis on an ideal cooperation and offering market-ready and appropriate products enable aluplast to meet global requirements. From reasonable priced to exclusive high-value solution the system provider sets its value on the market needs.



Up to the present, the company has been remained to be a family owned company and is being managed by the founder's sons Dirk and Patrick Seitz.

Today, aluplast with its high-quality window solutions is known as the technology leader in the branch, presenting at least one brilliant innovation every year. This also applies to aluplast's latest development: energeto®, an energy-efficient window frame profile with metal-free thermoplastic reinforcements. This patented and highly awarded window system is developed by aluplast and our partner BASF – the chemical company. energeto® allows the

production of a window system both thermally insulating and economical at the same time without the need of steel reinforcements, which was impossible prior to that. A unique thermal insulation of up to  $U_w = 0.60 \text{ W/m}^2\text{K}$  can be achieved by using energeto®.

Over the past decades, the company has been developing a worldwide network of more than twenty production and sale subsidiaries. Day by day, the uPVC window system provider ensures quality and best technical support to our partner, worldwide.

Service and innovation made in Germany.



**Entrepreneur des Jahres**  
*Finalist 2011*



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quality  
made in  
germany

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