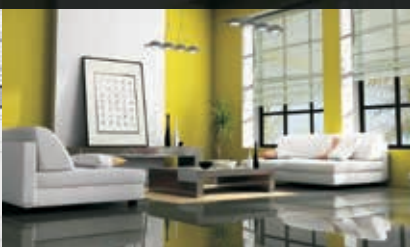


THE FUTURE OF ENERGY EFFICIENCY



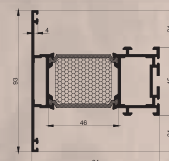
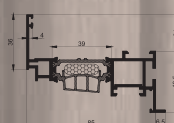
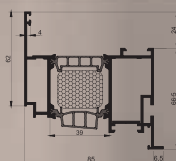
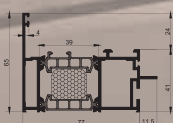
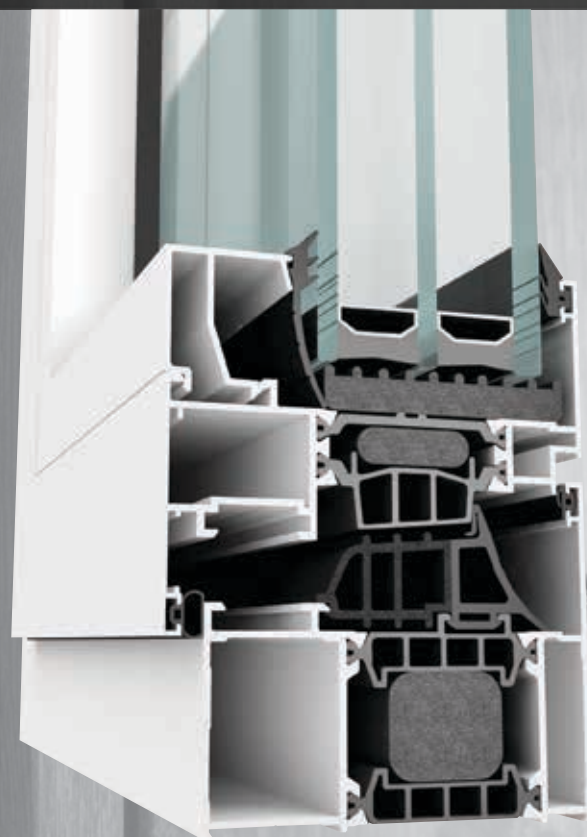
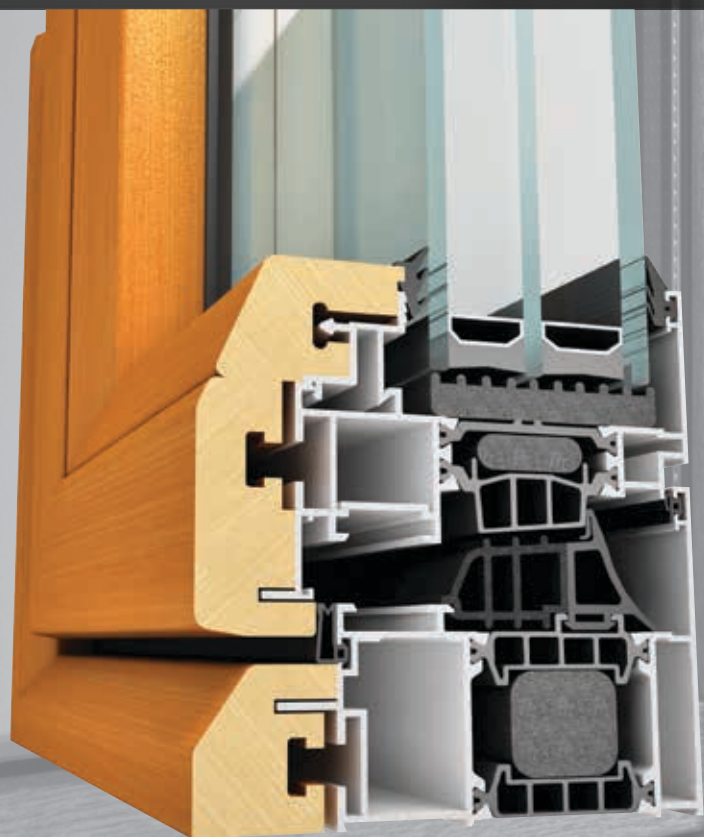
LINEAL

ALUMINIUM SYSTEMS FOR WINDOWS AND DOORS



DESIGNED AND MANUFACTURED BY TEHNOMARKET





TECHNOLOGY

Innovative system solutions with installation depths varying from 54 to 104 mm and improved thermic characteristics aiming at modern users and investors with specialized and modern demands. The system is projected to provide maximum efficiency in isolation with a minimal material consumption, which at the same time adheres to all current European and global norms on energy efficiency and ecology.



MODULARITY

A simple approach to system construction and the choice of basic components added to its modularity which offers a whole range of different subsystems with a wide range of characteristics through combining the basic profile and a small number of additional components.



DESIGN

Clean surfaces and clear geometrical forms fit in perfectly with different interior options, where its luxurious materialization and minimalist design can subtly enrich any indoor space. The design of the straight and smooth surface of the window frames was created in response to the demands of contemporary designers and modern architecture.



ENERGY EFFICIENCY

Achieved as the result of properly positioned and ideally dimensioned basic elements: aluminium profiles, polyamide strips and i EPDM seals, with a view of reducing heat loss and providing a maximum living (for the W-THERM 104 system it is possible to achieve $U_w=0,84W/m^2K$).



New Lineal system was designed in Tehnomarket with a view to exploit the advantages of using aluminium in the production of the new generation doors and windows with special demands regarding energy efficiency to the maximum capacity.

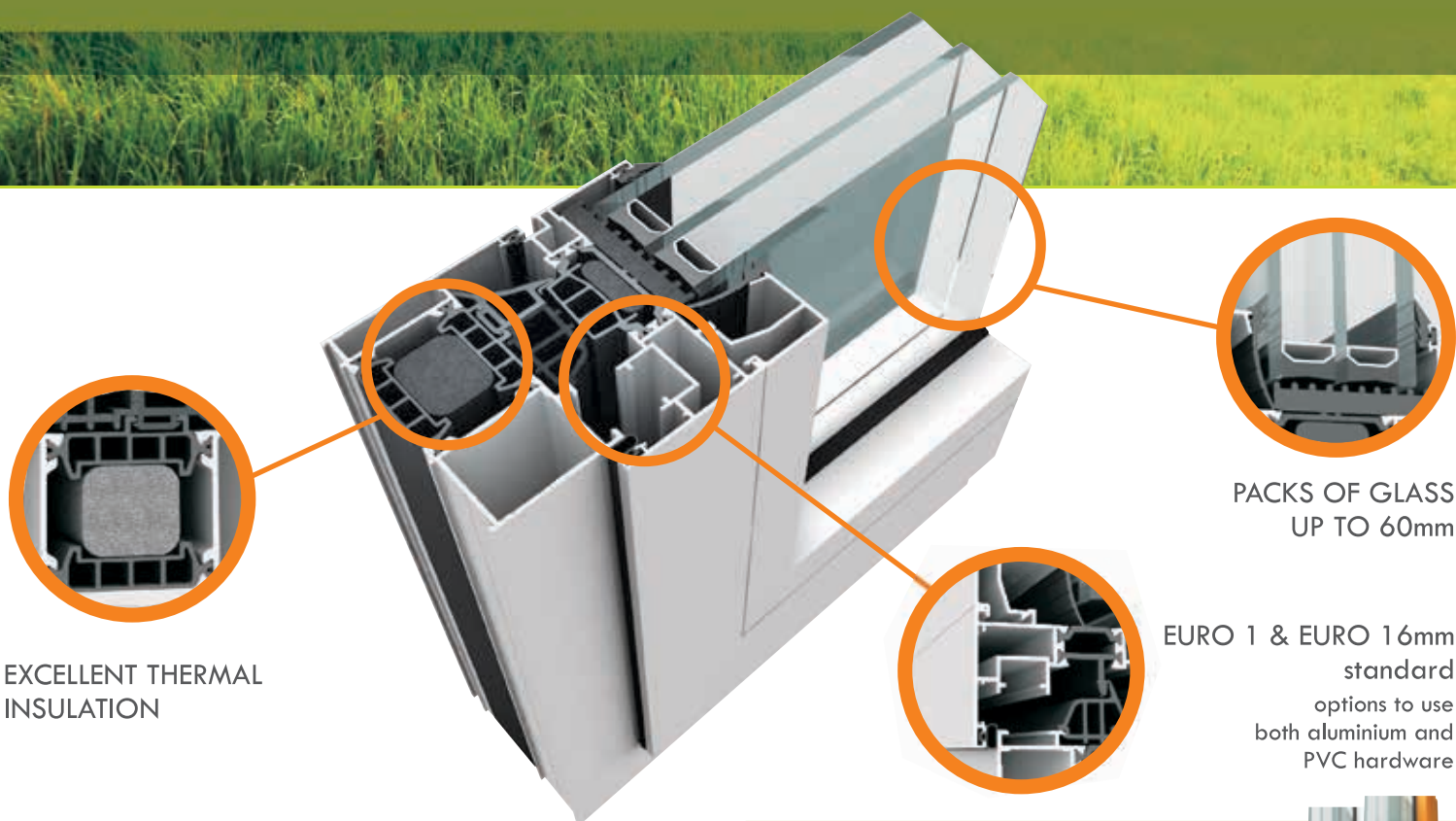
The use of aluminium makes the stable and elegant form of the frame possible, with improved thermal isolation achieved through a thermal break provided by wide polyamide strips and integrated foam fills.

Lineal offers two types of profile construction with thermal break – one with an aluminium base, and one combining an aluminium construction and a wooden inner lining.

The system is modular, so that different element combinations provide six subsystems with different installation depths starting with 54mm in aluminium, all the way to 104mm in the luxury aluminium-wood combination.

LINEAL

PERFECT FOR YOUR HOME



EXCELLENT THERMAL INSULATION

PACKS OF GLASS
UP TO 60mm

EURO 1 & EURO 16mm
standard
options to use
both aluminium and
PVC hardware

LINEAL



LINEAL ST 54



LINEAL PLUS 62



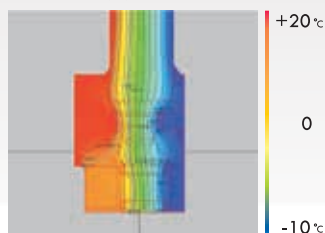
LINEAL THERM 77



Three different installation depths – 54mm, 62mm and 77mm offer the customers the possibility of choosing a subsystem which meets the desired and projected requirements in the planned exploitation of doors and windows. Optimized thermal isolation as an important factor of comfort is achieved through thermal break in the shape of polyamide strips of varied width – 16mm, 24mm and 39mm, and is directly related to the installation depth of the frame.

THERM 77 system, as technologically most complex, possesses enhanced thermic characteristics achieved through honeycomb structure multi-chambered polyamides, foam fills and coextruded central seals. Combined with three layer glass ($U_g=0,6W/m^2K$) in this systems windows it is possible to achieve a minimal heat transfer through the entire window of $U_w=0,96W/m^2K$ designed for low energy buildings.

THERM 77



isotherm spreading through the cross section of the entire window

COMFORT

COMFORT

Comfort in exploitation is achieved by improving three key elements of comfort: thermal isolation providing heat to the touch, control of micro-aeration of the room which eliminates the unpleasant feeling of airtightness and, finally, sound isolation necessary for the peace and privacy of living and working spaces.

STABILITY

Optimal ratio of static capacity of the profile and the width of thermal break zone provides us with a possibility of projecting large openings and introducing an ideal amount of light into the ambient. All three subsystems offer elegant views in rod-wing combination with visual heights ranging from 106mm for the windows to the maximum of 186mm for balcony doors.

DIVERSITY

The option of the aluminium system offers a wide range of combinations of the limited number of profiles, which enables the production of windows, balcony doors, entrance doors with threshold and portals, together with the installation of a number of different accessories ranging from turn, tilt, tilt-turn, ventus, hinge-slide and slide mechanisms. A special offer for investors and clients is the option of choosing one of two grooves, EURO 1 for the aluminium and EURO 16mm for PVC accessories.

SAFETY

As a design priority we have defined the choice of safe materials, certified with a CE stamp, which offer total safety from unfavourable outside conditions in our ready-made elements. Also, the possibility of integrating a burglar security system has been enabled through safety grade WK1 and WK2 accessories, which provides additional safety for the clients and their property.





PERFECT FOR YOUR HOME

LINEAL	TYPES OF ELEMENTS			INFILL			TYPES OF OPENING				LOW ENERGY BUILDINGS	U _w
												W/m ² K
ST 54	●	●	●	●	●	●	●	●	●	●		1,67
PLUS 62	●	●	●	●	●	●	●	●	●	●		1,25
THERM 77	●	●	●		●	●	●	●	●	●	●	0,96

All the elemental are available in two options of surface protection — pulverisation in all RAL tones or anodisation.

EURO 1 & EURO 16mm

Lineal profile systems offer the possibility of using aluminium and PVC hardware



POLYAMIDE STRIPES

3 levels of thermal isolation available with polyamide strips 16, 24 i 39mm wide



INFILL

Lineal profile system support two-layered and three-layered packages of glass, width up to 56mm



MAXIMUM INSULATION

Created by applying special foam fill in the THERM 77 system



LINEAL W-ST 81

LINEAL W-PLUS 89

LINEAL W-THERM 104

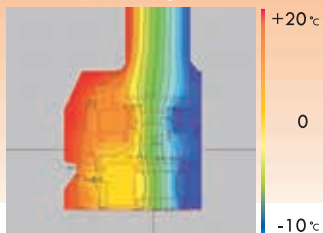


An ideal combination of durable and solid aluminium and precious wood for inner lining is created to provide a superior window, which can be an excellent addition to any workspace or home. The three projected subsystems with installation depths of 81mm, 89mm and 104mm meet the current standards of energy efficiency in modern construction, but at the same time they are distinguished by their improved performances, design and luxurious materials.

As a subsystem with the best characteristics W-THERM 104 is singled out as it possesses the qualities of enhanced isolation with the possibility of achieving $U_w=0,87 \text{ W/m}^2\text{K}$ (with the use of three layer glass $U_g=0,6 \text{ W/m}^2\text{K}$), and with an incredible price-quality ratio, so important to the investors today.

LUXURY

W-THERM 104



isotherm spreading through the cross section of the entire window

WARMTH

Exceptional thermal insulation is the main characteristic of the products in this group, with the values that absolutely comply to both the current standards and the demands of the modern users. Aluminium with the thermal break makes for the stronger carrier part of the element construction, while the wooden lining adds to the warmth with its rich natural structure of isolation material.

MASSIVE WOOD

Massive and high-quality wood discreetly adds to the beauty of the space, making it luxurious and attractive for the users. As internal lining it is used for designer battens on the wings, rods and glass holders in the total height of the frame from 106mm to 132mm, with a rich assortment of wood types, as well as the protective layer colour and structure.

DURABILITY

The windows of the three subsystems offer the highest level of durability. Aluminium – as a strong and stable material, impervious to weather conditions – carries the entire construction of the finished element and as such is on the outer side. The wooden lining, attached with a patent connection which enables the independent activity of the two main construction materials, is on the inside, completely protected from atmospheric influences, where its beauty and duration can really be appreciated.











AESTHETICS

Wood as a traditional and natural material, tested through the centuries of use, offers a new aesthetic dimension to the windows. It undoubtedly adds to the comfort of the interior with an unparalleled feeling of warmth and luxury. The ability to choose between the different types of wood lining, such as oak, walnut, beech and cherry tree, with different colours and structures makes the finished elements fit easily into different types of interiors.





WARMTH AND REFINEMENT

LINEAL	TYPES OF ELEMENTS				INFILL		TYPES OF OPENING				LOW ENERGY BUILDINGS		U _w
													
W-ST 81	●	●			●	●	●	●	●	●		1,52	
W-PLUS 89	●	●			●	●	●	●	●	●		1,13	
W-THERM 104	●	●				●	●	●	●	●	●	0,89	

All the elemental are available in two options of surface protection — pulverisation in all RAL tones or anodisation.

MORE THAN 20 SHADES OF ECOLOGICAL WOOD COLOURS AVAILABLE

POLYAMIDE STRIPS

There are three levels of heat insulation with polyamide stripes up to 39 mm in width



INFILL

Lineal profile system support two-layered and three-layered packages of glass up to 60mm in width



NATURAL WOOD

Warmth and luxury which only natural wood can provide





COMPARATIVE SUMMARY OF THE

LINEAL



ST 54



PLUS 62



THERM 77

Uf - coefficient of the heat passage through the profile	2.87 W/m ² K	2.38 W/m ² K	1.37 W/m ² K
Uw - kcoefficient of the heat passage through the window	1.67 W/m ² K	1.3* W/m ² K	0.96* W/m ² K
infill width min-max	8-32 mm	8-40 mm	23-56 mm
profile height min-max	106-186 mm	106-186 mm	106-186 mm
window	●	●	●
balcony door	●	●	●
entrance door	●	●	●
EURO 1 hardware	●	●	●
EURO 16mm hardware	●	●	●
Tehnomarket hardware			
safety hardware WK1, WK2	●	●	●

* triple glass package Ug 0,6 W/m²K / EN ISO 10077-2

The upper table represents comparative summary of the technical characteristics of Lineal system profiles for windows and doors production.



QUALITY

Tighter market criterions which dictate the needs and expectations of the clients consistently raise the level of the characteristics of the products which have to be fulfilled. That is why quality is the component of the highest importance. The system of management, which is implemented and certified with the quality according to the standard ISO 9001:2008, confirms the capability of Tehnomarket as company to provide the high level of quality of the new Lineal system of profiles, which is intended for production of doors and windows.

Industrial control of the production of each component of the system, as well as reports about examinations of several external laboratories, guarantee the coordination of the product characteristics with the needs of the technical specifications and European quality standards.

SYSTEM CHARACTERISTICS.



W-ST 81



W-PLUS 89



W-THERM 104



2.36 W/m²K	2.05 W/m²K	1.14 W/m²K
1.52 W/m²K	1.13* W/m²K	0.87* W/m²K
18-38 mm	26-46 mm	41-60 mm
106-132 mm	106-132 mm	106-132 mm
●	●	●
●	●	●
●	●	●





FIRST-CLASS INSULATION

COMPARATIVE SUMMARY OF THE SYSTEM CHARACTERISTICS



Sound Insulation

EN ISO 140-3



Thermal Performance

EN ISO 12567-1



Water Impermeability

EN 12208:1999-11



Air Impermeability

EN 12207:1999-11



Wind Load

EN 12210:1999-11/AC:2002-08

Lineal Plus 62

$R_w(C;Ctr) = 34 (-1; -5) \text{ dB}$ $U_w = 1,3 \text{ W}/(\text{m}^2\text{K})$

CLASS 6A

CLASS 4

CLASS C5/B5

Lineal Therm 77

$R_w(C;Ctr) = 40 (-1; -5) \text{ dB}$ $U_w = 0,96 \text{ W}/(\text{m}^2\text{K})$

CLASS E750

CLASS 4

CLASS C5/B5

Lineal system is designed and produced according to health and safety requirements of the relevant directive for construction products 89/106/EEC and harmonized standard for windows and doors EN 14351-1:2006+A1:2010

All Lineal subsystems have the possibility of labeling the completed doors and windows with CE mark, which is necessary for the clients within European Union. In that way it is possible to make a product "passport", which is a required part of the export procedure.



LINEAL

THE FUTURE OF ENERGY EFFICIENCY

ENERGY
SAVINGS
UP TO
40%

ECOLOGY

Lineal profile systems for doors and windows production present ecologically acceptable products which focus on maximal energy efficiency and reduction of CO2 emission on the objects they are installed on.

With their performances, like all other products of the Tehnomarket Company, they contribute to the green building trends and they are environmentally friendly.

ENERGY EFFICIENCY

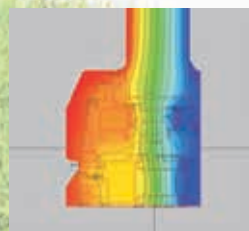
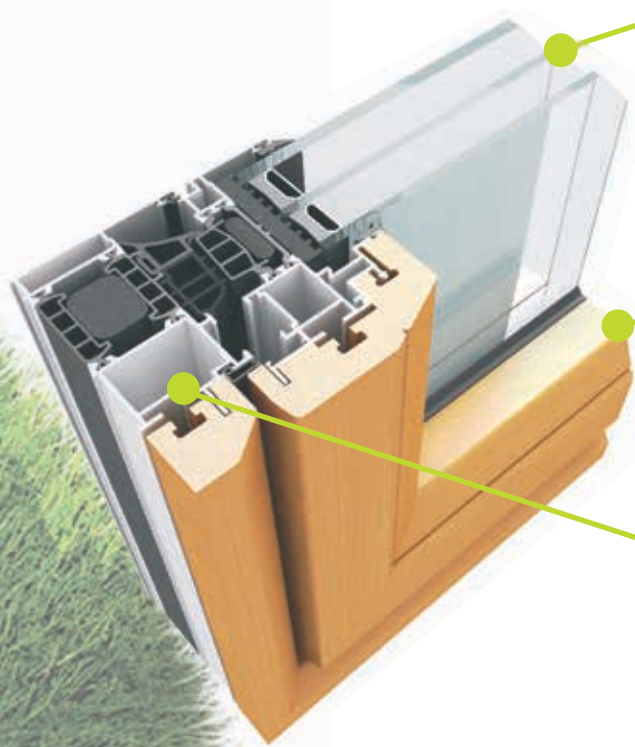
REDUCTION
OF CO2
EMISSION

NATURAL WOOD

100%
REUSABLE

ALUMINIUM PROFILES

100%
RECYCLABLE





THE FUTURE OF ENERGY EFFICIENCY

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