CALCULATION REPORT
THERMAL TRANSMITTANCE DOORSET

APPLICANT	**PROFILE DEVELOPMENTS** **Ballygiltenan North, Glin, Co. Limerick** **V94-K220 – GLIN (LIMERICK, IRELAND)**
MANUFACTURER(1)	**PROFILE DEVELOPMENTS**
PRODUCT	**SINGLE-LEAF HINGED DOOR**
REFERENCE(1)	**PALLADIO GLAZED**
MATERIAL(1)	**COMPOSITE, PUREX WG 2030** **Glazing 4low/14 Ar / 4 / 14 Ar / 4** **Spacer: THERMOBAR**
DIMENSION	**2191 mm x 1006 mm (Hight x Width)**
DATE OF TEST	**14.03.2024**
DATE OF ISSUE	**15.03.2024**

Calculation Standard :
UNE-EN ISO 10077-2 :2020. Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2: Numerical method for frames (ISO 10077-2:2017)
UNE-EN ISO 10077-1 :2020. Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1: General (ISO 10077-1:2017, Corrected version 2020-02).

Section

RESULTADOS
Results

U_D = 0,98 W/m²K

Luis García Viguera
Department Director

The result of the present test(s) only concerns the tested object(s). The reports signed electronically on digital support are considered an original document, as well as the electronic copies of the same. Their printing on paper has no legal validity (1) ENSATEC, S.L.U., declines all responsibility for the information provided by the client.

1 SCOPE

The purpose of this report is to determine the thermal transmittance of the following element: **Single-leaf hinged door, composite material and PUREX WG 2030 insulation, glazed** referenced by the customer as: **PALLADIO GLAZED**, by the numerical method described in the UNE-EN ISO 10077-1:2020 standard.

The simulation uses the BISCO software version 12, developed by the company Physibel, based on the two-dimensional finite element method for calculating heat transfer. This software has been validated in accordance with the specifications of the UNE-EN ISO 10077-2:2020 standard.

2 SAMPLE DESCRIPTION PROVIDED BY THE CLIENT

Description:	SOLID COMPOSITE DOORSET
Model (1):	PALLADIO GLAZED
Material (1):	COMPOSITE, PUREX WG 2030 INSULATED

The technical specifications of the test sample have been provided by the applicant and delivered to the laboratory under reference MV76242

The dimensions of the calculated elements are 2191 mm x 1006 mm (Hight x Width)

3 PROCEDIMIENTO DE CÁLCULO

The UNE-EN ISO 10077-1:2020 standard establishes that the thermal transmittance of the door is calculated using the following expression:

$$U_D = \frac{\sum A_g \cdot U_g + \sum A_p \cdot U_p + \sum A_f \cdot U_f + \sum l_g \cdot \Psi_g + \sum l_P \cdot \Psi_P}{\sum A_g + \sum A_f + \sum A_p}$$

U_D	Thermal transmittance of the door
U_g	Thermal transmittance of glazing
U_f	Thermal transmittance of frame
U_p	Thermal transmittance of opaque panel
Ψ_g	Linear thermal transmittance due to the combined thermal effects of infill, glazing and frame
Ψ_p	Linear thermal transmittance due to the combined thermal effects of the panel and frame
A_g	Area of glazing
A_f	Projected area of frame
A_p	Area of opaque panel
l_g	Total visible perimeter of glazing
L_p	Total visible perimeter of opaque panel

The values corresponding to the heat transmission coefficients of the frames Uf, and of the opaque panel Up have been calculated numerically according to UNE-EN ISO 10077-2:2020. These calculations are shown in section 5 of this report.

The value of Ug has been estimated by the laboratory according to EN 634 and the description of the insulating glass unit, provided by the petitioner.

- Total thickness of IGU: 40 mm
- Composition 4mm Low e glass/ 14mm spacer+Argon/4mm clear float glass/14mm spacer+Argon/4mm clear glass
- Ug Value = 0.58 W/m^2K

Linear thermal transmission coefficient Ψg It takes into account combined thermal effects of glazing, spacer and frame, provided by the applicant, in the THERMOBAR spacer data sheet.
See annex 8 for the technical data sheets of the materials provided by the applicant.

Linear thermal transmission coefficient Ψ_P can be considered zero as the requirements of section 6.3.2.5. of UNE-EN ISO 10077-1:2020 are fulfilled.

4 BOUNDARY CONDITIONS AND MATERIAL PARAMETERS.

The boundary conditions used for the calculation are those described in Annex E of UNE-EN ISO 10077-2:2020.

Position	Exterior Rse (m2K/W)	Interior Rsi (m2K/W)
Normal (flat surface)	0.04	0.13
Radiation/Reduced convection (edges or joints between surfaces)	0.04	0.20

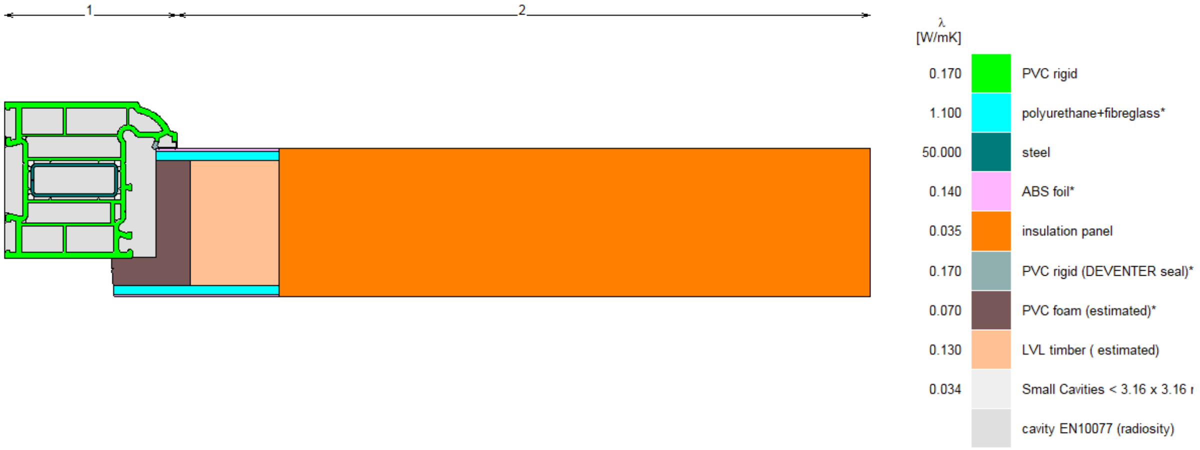
Reference temperature conditions are 20°C inside and 0°C outside.
The emissivity shall be taken as 0,9 in all cavities.
Thickness of simulated glass, 40 mm

The calculation method used was the RADIOSITY

The thermal conductivity values of the materials used in the calculation are taken from the UNE-EN ISO 10456:2012 Standard "Building materials and products. Hygrothermal properties. Tabulated design values", except those marked with (*) which have been provided by the applicant.

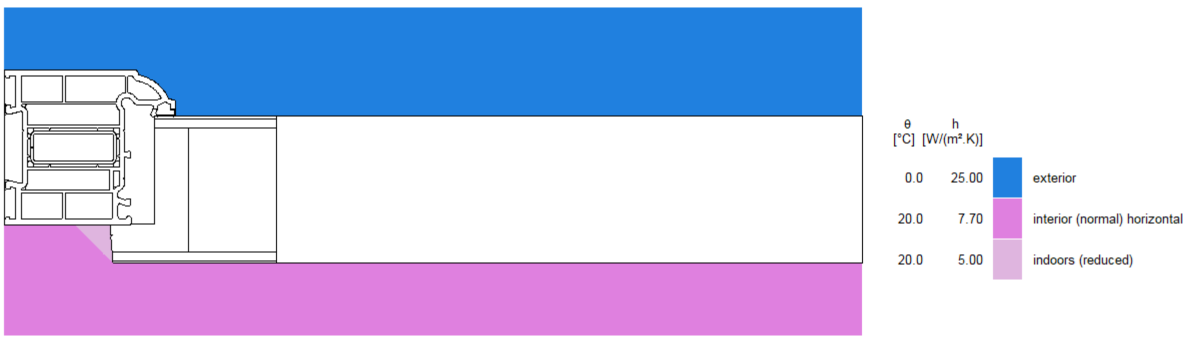
5 CALCULATION OF THE THERMAL TRANSMITTANCE OF THE ELEMENTS

5.1 Thermal transmittance Outer frame.



Boundary conditions

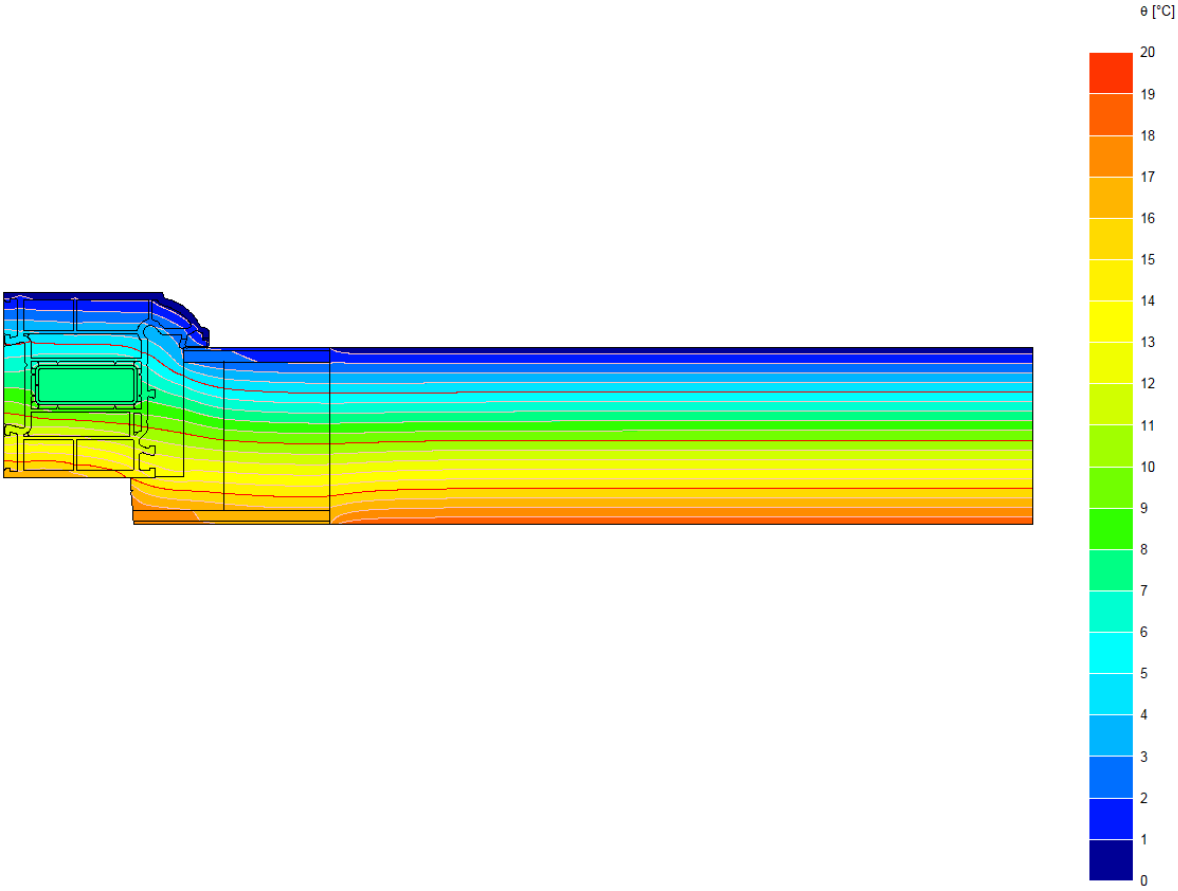
The boundary conditions are represented below



Total Heat Flow (Q)	5,835	W/m
Panel length (l_{p1})	0,311	m
Frame lenght (l_f)	0,077	m
Thermal transmittance Panel (U_{p1})	0,483	W/m²K
Thermal transmittance (Uf)	**1,838**	**W/m²K**

$$U_f = \frac{\left(\frac{Q}{t_i - t_e}\right) - U_{p1} \cdot l_{p1}}{l_f}$$

Isotherms and heat flux graph

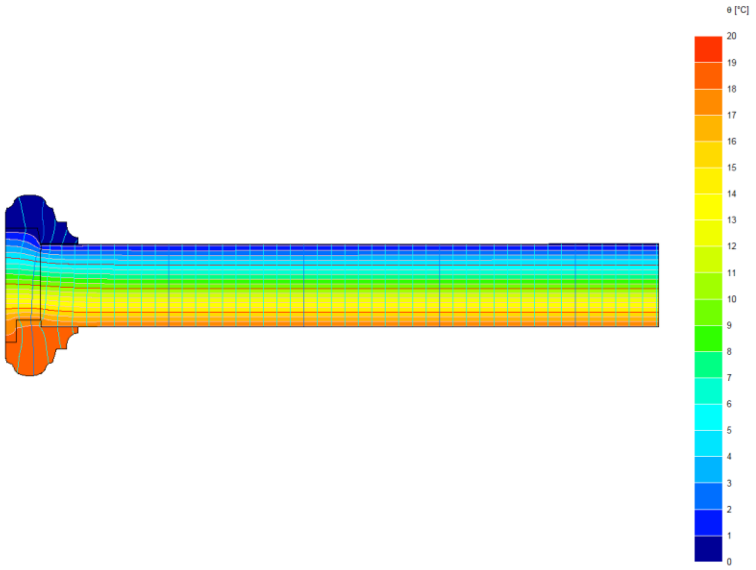


5.2 Thermal transmittance Glazing beading.

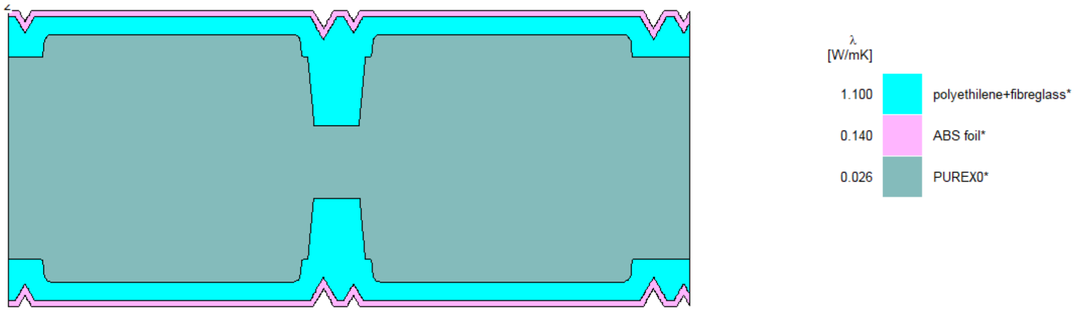
Boundary conditions

Total Heat Flow (Q)	4,755	W/m
Panel length (l_{p1})	0,283	m
Frame lenght (l_f)	0,035	m
Thermal transmittance Panel (U_{p1})	0,416	W/m²K
Thermal transmittance (Uf)	**3,413**	**W/m²K**

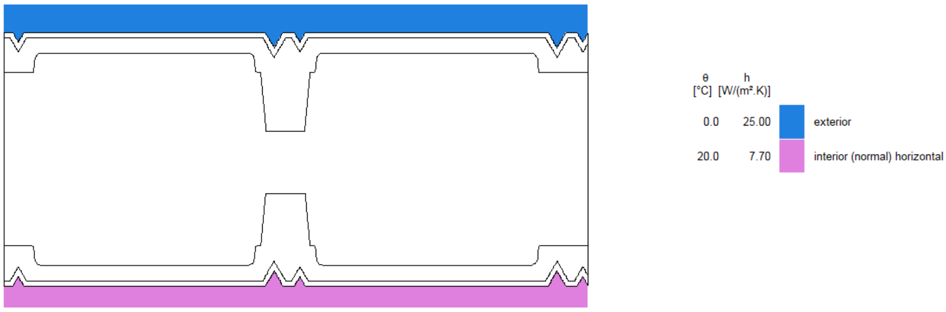
$$U_f = \frac{\left(\frac{Q}{t_i - t_e}\right) - U_{p1} \cdot l_{p1} - U_{p2} \cdot l_{p2}}{l_f}$$



5.3 Thermal transmittance molded panel.



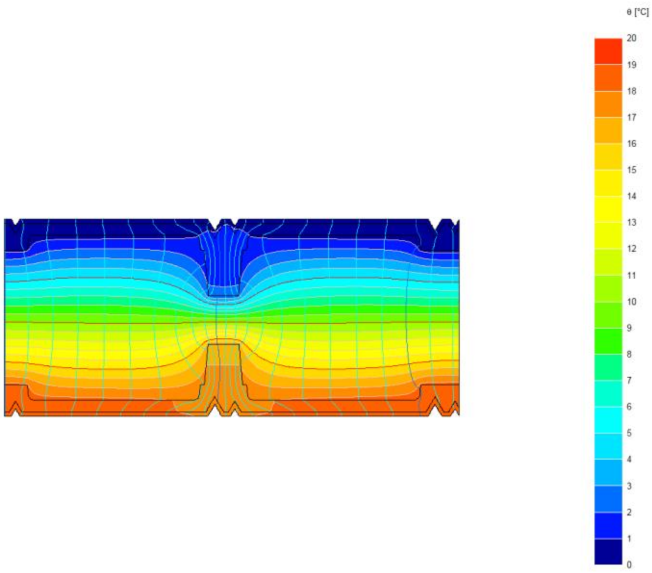
Boundary conditions



Total Heat Flow (Q)	1.736	W/m
Panel length (l_{p1})	0.1538	m
Thermal transmittance (Up)	**0.564**	**W/m²K**

$$U_p = \frac{Q}{(t_i - t_e) \cdot l_p}$$

Isotherms and heat flux graph.



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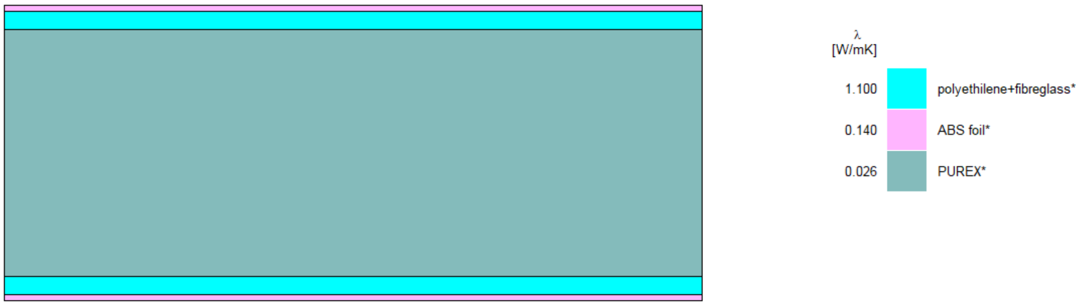
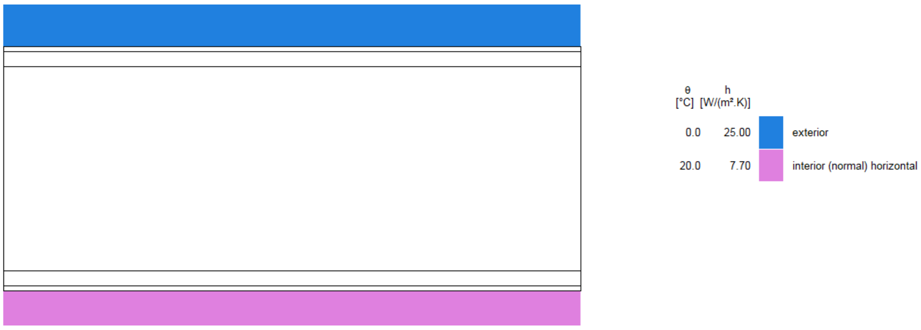
5.4 Thermal transmittance flat panel.



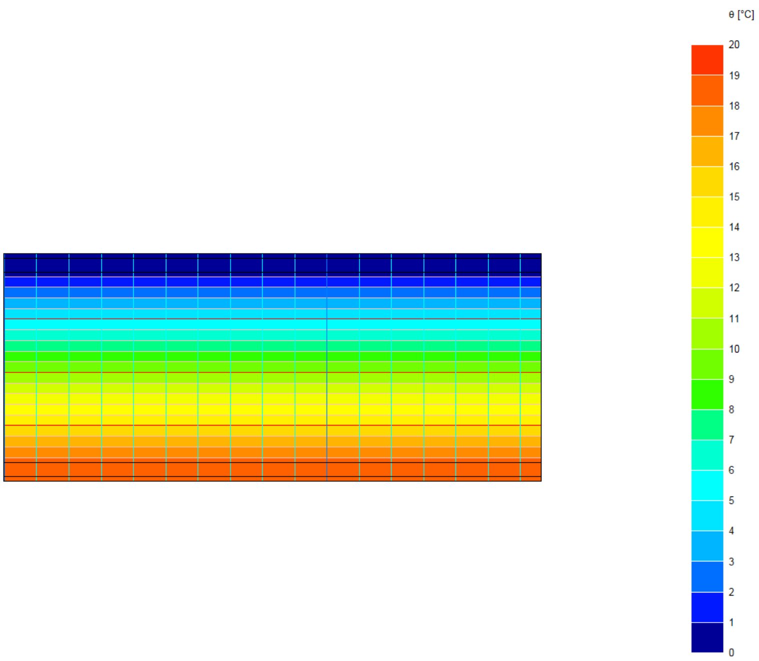
Boundary conditions



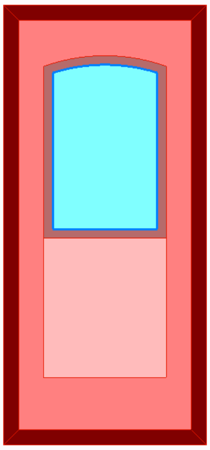
Total Heat Flow (Q)	1,530	W/m
Panel length (l_{p1})	0,1575	m
Thermal transmittance (Up)	**0,486**	**W/m²K**

$$U_p = \frac{Q}{(t_i - t_e) \cdot l_p}$$

Isotherms and heat flux graph.



6 CALCULATION OF THERMAL TRANSMITTANCE OF THE DOOR



Width	1006	mm
Height	2191	mm
Total Area	2.2041	m^2
U*A total	2.0781	W/K
ψ*L total	0.0781	W/K
Transmittance U_D	0.9783	W/m²K

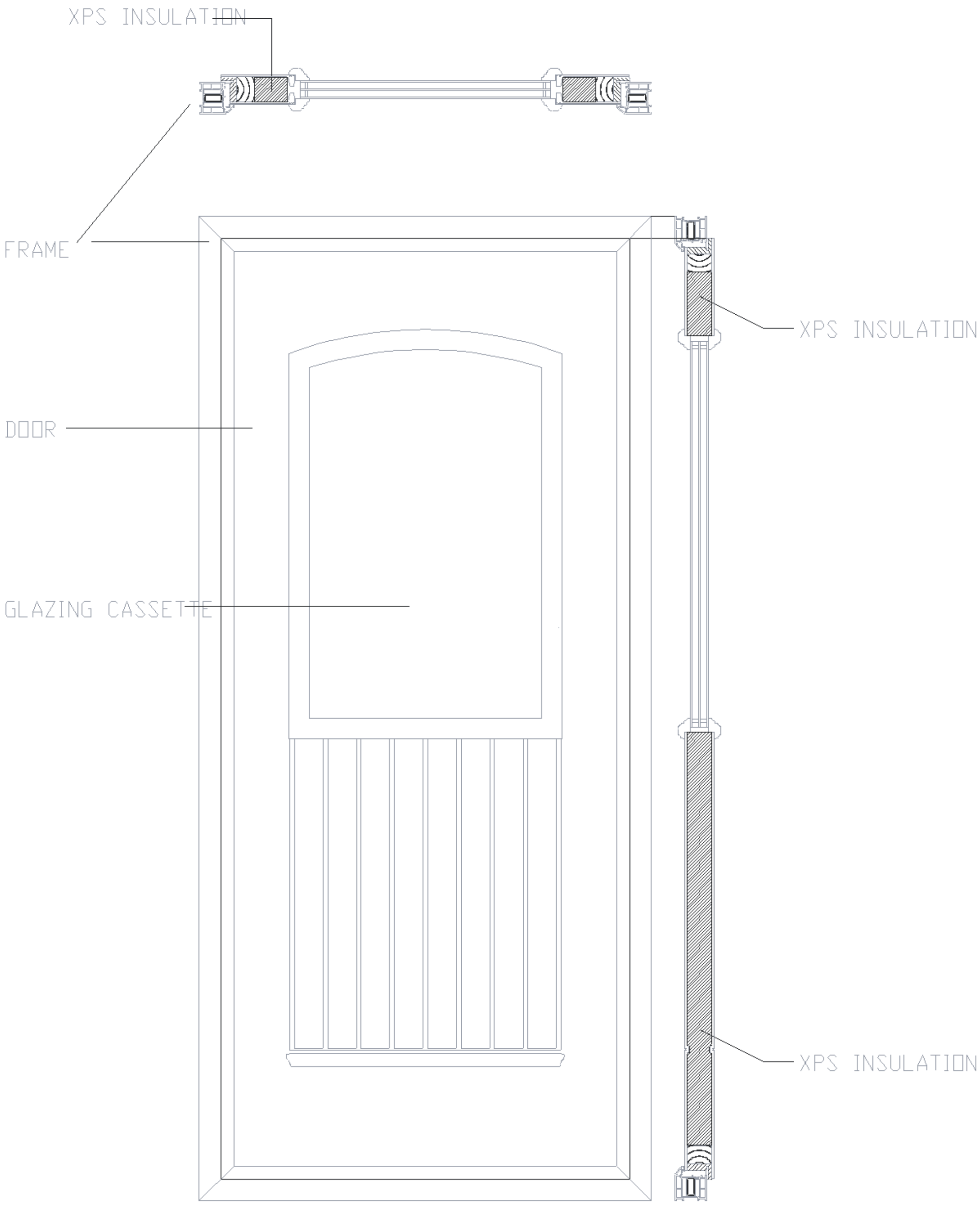
The expanded uncertainty for the calculation of thermal transmittance is less than 5%
NOTE: The uncertainty has been calculated taking into account what is indicated in the EN UNE-EN ISO 10077-2:2020 standard.

The individual values for each element are shown below:

Reference	*color*	*U [W/m²K]*	*Width [mm]*	*Height [mm]*	*A [m²]*	*U*A [W/K]*
glazing		0,58	518	819,76	0,41779	0,2423
flat_panel		0,426	852	2037	0,77077	0,3283
glazing_beading		3,4130	608	910	0,12476	0,4258
molded_panel		0,5640	608	694,41	0,42220	0,2381
outer_frame		1,8	1006	77	0,07153	0,1288
outer_frame		1,8	77	2191	0,16278	0,293
outer_frame		1,8	77	2191	0,16278	0,293
outer_frame		1,8	1006	77	0,07153	0,1288

ψ material	color	*ψ [W/mK]*	*Total length L [mm]*	*ψ*L [W/K]*
thermobar		0,030	2603,74	0,0781

7 SECTIONS PROVIDED BY THE CUSTOMER (1)



8 DOCUMENTATION PROVIDED BY THE CUSTOMER [(1)]

Thermobar™ Warm Edge Spacer Tube

For further information on specifying Thermobar in various window types contact Thermoseal Group on: 0845 331 3950, International: +44 (0)121 331 3950

THERMOBAR - Thermal performance in various window types

	DOUBLE GLAZING			TRIPLE GLAZING		
Spacer System	Aluminium	Stainless Steel	Thermobar	Aluminium	Stainless Steel	Thermobar
WOODEN WINDOWS:	Frame value: U_f =1.4 W/m²K; Glass value: U_g =1.1 W/m²K			Frame value: U_f =1.3 W/m²K; Glass value: U_g =0.7 W/m²K		
Psi value [W/mK]	0.082	0.053	0.031	0.089	0.054	0.029
Window, U_w 1-pane [W/m²K]	1.40	1.32	1.27	1.10	1.02	0.95
Window, U_w 2-pane [W/m²K]	1.52	1.41	1.33	1.26	1.13	1.04
Minimal surface temperature* [°C]	4.1	7.3	9.7	6	9.6	12.1
PVC WINDOWS:	Frame value: U_f =1.2 W/m²K; Glass value: U_g =1.1 W/m²K			Frame value: U_f =1.2 W/m²K; Glass value: U_g =0.7 W/m²K		
Psi value [W/mK]	0.076	0.051	0.032	0.078	0.050	0.030
Window, U_w 1-pane [W/m²K]	1.32	1.26	1.21	1.05	0.98	0.93
Window, U_w 2-pane [W/m²K]	1.42	1.33	1.26	1.19	1.08	1.01
Minimal surface temperature* [°C]	5.3	8.3	10.4	6.7	9.9	12.0
WOOD ALUMINIUM WINDOWS:	Frame value: U_f =1.4 W/m²K; Glass value: U_g =1.1 W/m²K			Frame value: U_f =1.4 W/m²K; Glass value: U_g =0.7 W/m²K		
Psi value [W/mK]	0.094	0.059	0.032	0.100	0.060	0.030
Window, U_w 1-pane [W/m²K]	1.43	1.34	1.28	1.17	1.08	1.00
Window, U_w 2-pane [W/m²K]	1.57	1.44	1.34	1.35	1.21	1.10
Minimal surface temperature* [°C]	2.2	6.1	8.8	4.4	8.6	11.3
ALUMINIUM WINDOWS:	Frame value: U_f =1.6 W/m²K; Glass value: U_g =1.1 W/m²K			Frame value: U_f =1.6 W/m²K; Glass value: U_g =0.7 W/m²K		
Psi value [W/mK]	0.110	0.068	0.036	0.120	0.064	0.031
Window, U_w 1-pane [W/m²K]	1.54	1.44	1.36	1.30	1.17	1.09
Window, U_w 2-pane [W/m²K]	1.72	1.56	1.45	1.53	1.32	1.21
Minimal surface temperature* [°C]	4.7	8.4	10.8	6.8	10.6	12.9

The quivalent heat conductivity was caluclated as per the ift WA-17/1 guidelines. The representative Psi values were calculated under the conditions laid down in the ift WA-08/2 guidelines.

Psi value: linear heat throughput at edge of glass [W/mK] as per EN ISO 10077-2:2012-06

* corresponds to conditions in DIN 4108-3

External temperature Ta: -10°C
Internal temperature Ti: +20°C

Geometry	Wood	PVC	Wood-Aluminium	Aluminium
Total Area: (1.23 x 1.48m) A_w in m²	1.82	1.82	1.82	1.82
Frame width b_f in mm:	110	117	120	130
Frame area A : in m²(1-pane/2-pane.)	0.548/0.686	0.579/0.725	0.593/0.742	0.637/0.796
Length of glass edge l_g : in m (1-pane/2-pane)	4.540/6.840	4.484/6.742	4.460/6.700	4.380/6.560

Bostik

PRODUCT DATA

Date: October 2009 Code: 00814/30

BOSTIK 5000 HOT MELT BUTYL

HOT MELT INSULATING GLASS SEALANT

Bostik 5000 Hot Melt Butyl Sealant has been specifically formulated for use in the production of insulating glass units. Bostik 5000 Hot Melt Butyl Sealant is a single part butyl rubber based sealant which, when applied at the correct temperature, sets quickly from its molten state allowing units to be moved from their assembly location between two and five minutes after application. Units can therefore be sealed and glazed within the same day. Bostik 5000 Hot Melt Butyl Sealant has a high output and fast heat loss enabling optimum turn round of unit production. The combination of these properties also means that corner defects can be easily avoided thereby ensuring a complete seal around the unit.

Features

- Compatible with all types of manual dispensing equipment currently available
- Quick-setting from the molten state
- Clean application with no wastage
- No cleaning or purging of dispensing equipment required
- Can be used as a secondary seal in conjunction with a P.I.B. primary sealant such as Bostik 2000. Consult Bostik Technical Services
- Convenient pack sizes for easy storage

Certification

Bostik 5000 fully meets the requirements of EN 1279.

Product Characteristics

Packaging	6.5 kg block 190 kg drum
Constitution	A blend of butyl rubber with other synthetic polymers and resins, which contain no volatile materials
Colour	Black
Form	Rubbery solid
Density	1.15 to 1.19 g/cm³
Shelf life/storage	At least 12 months from date of manufacture when stored unopened in a cool, dry place within the temperature range +5°C to +25°C.

Typical Performance Data (approx.)

Moisture vapour transmission rate	0.1 g/m² per day for a 2mm film at 25°C, 100% RH. (ASTM method E96)
Application temperature	+180°C to +195°C ex nozzle

Directions for use

IMPORTANT

Before embarking on any work involving Bostik 5000 Hot Melt Butyl Sealant, the Safety Data sheet should be carefully studied by those carrying out the work. Gloves and eye protection are recommended.

Surface Preparation

Bostik 5000 Hot Melt Butyl Sealant exhibits excellent adhesion to cut, ground or polished glass, aluminium and galvanised steel spacer bar. It is essential that all surfaces are clean and dry and free from foreign matter. Coated glasses which require edge deleting must be used in accordance with manufacturer's instructions.

Application

The sealant should be applied by means of a suitable heated dispenser. It is very important that the sealant is applied within the recommended temperature range, therefore it is advisable that the application temperature be checked daily with a digital thermometer at the gun nozzle whilst gunning sealant. Further advice can be obtained from the Bostik Technical Service Department. The sealant should be applied into the cavity of the insulating glass unit in such a manner that complete wetting of the glass and spacer occurs. If an internal locating nozzle is used, the nozzle should be checked regularly to avoid excessive wear, in order to ensure that the correct seal depth is maintained. Care should be taken on sealing each corner and the sealant should be pressed together whilst still molten by means of a silicone rubber pad, in order to prevent any holes or gaps in the sealant at the corners, which could lead to premature unit failure. If the units are to be stored on a rack ensure that they are adequately supported under both panes of glass.

Glazing Method

Units manufactured with Bostik 5000 Hot Melt Butyl should be glazed in accordance with the current G.G.F. (Glass and Glazing Federation) methods or other G.G.F. recognised and approved methods. Further information may be obtained from the Bostik Technical Service Department. The use of adhesive tape is not recommended to cover the edge of the unit. Drained and ventilated systems should be used where possible otherwise fully bedded glazing methods are necessary. If the unit is to be glazed using a glazing compound which is likely to be in contact with the edge seal

See final page for disclaimer.

Bostik Limited, Common Road, Stafford, ST16 3EH, England Tel: +44 (0)1785 272727 Fax: +44 (0)1785 257896 www.bostik.co.uk

ATHLONExtrusions® ABS

Version 10/2022
B058

TECHNICAL DATA SHEET – AB401FOIL/R

DOOR PANEL FOIL / ABS – A SELECT DOOR FOIL LAMINATED ONTO A HIGH IMPACT ABS CORE LAYER DESIGNED FOR DOOR PANELS.

GENERAL			
Property	**Method**	**Unit**	**ATHLON*Extrusions*® ABS AB401FOIL/R**
Density [1]	ISO 1183	g / cm³	1.08
MECHANICAL			
Property	**Method**	**Unit**	**ATHLON*Extrusions*® ABS AB401FOIL/R**
Tensile Strength at Yield	ISO 527-2 / 50	MPa	40
Tensile E Modulus	ISO 527-2	MPa	2000
Elongation of Break	ISO 527-2	%	15
Charpy Impact notched	ISO 179 / 1eA	kJ / m²	18
Charpy Impact unnotched	ISO 179 / 1eU	kJ / m²	35
THERMAL			
Property	**Method**	**Unit**	**ATHLON*Extrusions*® ABS AB401FOIL/R**
Heat Deflection Temperature	ISO 75-2 / A	°C	99
Vicat Softening Point	ISO 306 / B50	°C	97
OTHERS			
Property	**Method**	**Unit**	**ATHLON*Extrusions*® ABS AB401FOIL/R**
Flammability	UL94	Rating	HB
Thermoforming Temperature Range (recommended)			140 – 175
Mould Shrinkage	ISO 294-4	%	0.5 – 0.8

Remark: These technical data of our products are typical ones. The actually measured values are subject to production variations.
[1] Density for black sheet is 1.07
[2] Carried out on 4 mm sheet
[3] Gloss values are attained from smooth finish thermoformed parts

3A COMPOSITES
Athlone Extrusions Ltd.
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Phone +353 90 6483 200
www.transport-industry.com
A member of 3A Composites

Technical Data Sheet

VORAFORCE TL 1660 Polyol
VORAFORCE TL 1600 Isocyanate

Description

VORAFORCE™ TL 1660 Polyol and VORAFORCE TL 1600 Isocyanate have been developed to be co-injected together with glass fiber via LFI or Interwet technology with applied density varying from 800 gr/l to 1000 gr/l and an amount of fiber glass content varying from 10% to 25%. This product allows to realize polyurethane composites suitable for the production of structural components with high Flexural Modulus.

Typical Component Properties

	Units	VORAFORCE™ TL 1660 Polyol	VORAFORCE™ TL 1600 Isocyanate	Test Method
Viscosity, 25°C	mPa.s	1100	210	ASTM D 445 (Cannon Fenske)
Specific Gravity, 25/25°C	-	1.08	1.23	ASTM D 891

These are typical values and should not be construed as specifications

Recommended Process Conditions

Polyol ingredient may separate into different layers; therefore each drum must be properly mixed before use.

	Units	Values	Remarks
VORAFORCE™ TL 1660 Polyol	pbw	100	
VORAFORCE™ TL 1600 Isocyanate	pbw	165-175	
Components temperature (Pol/Iso)	°C	25±3 / 25±3	

Typical Reaction Characteristics[1]

	Units	Hand-mix	High Pressure Machine [2]
Cream time	s		35-40
Gel time	s		65-70
Free rise density	gr/l		250-300

1. These are typical values and should not be construed as specifications
2. Data referred to laboratory tests made with a high pressure machine with components temperature 20-23°C and mold temperature of 40°C. Reported values vary depending on processing condition.

Handling and Storage

Components must be stored in a dry place avoid moisture absorption.Components shelf life is strongly related to storage temperature and must not exceed 50°C.

	Units	VORAFORCE™ TL 1660 Polyol	VORAFORCE™ TL 1600 Isocyanate
Storage temperature	°C	10-45	10-45
Storage stability /Shelf life [3]	months	6	6

3. Stored in the original sealed drums in a dry place at the recommended temperature

Typical physical Properties

	Units	Values	Test Method
Applied density	Kg/m³	1100	DIN 53479
% of glass in the polymer	%	25	DIN EN 60
Flexural Modulus	MPa	>4500	DIN EN ISO 178
Flexural Strength	MPa	>95	DIN EN ISO 178
Tensile Modulus	MPa	>4000	DIN EN ISO 527
Tensile Strength	MPa	>65	DIN EN ISO 527
Elongation	%	>1,0	DIN EN ISO 527
Impact CHARPY R.T.	Kj/m²	>60	DIN EN ISO 179

These are typical values and should not be construed as specifications

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Dow products— from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Safety Considerations

Safety Data Sheets (SDS) are available from The Dow Chemical Company. SDS are provided to help customers satisfy their own handling, safety and disposal needs and those that may be required by locally applicable health and safety regulations. SDS are updated regularly, therefore, please request and review the most current SDS before handling or using any product. These are available from the nearest Dow sales office.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Contact information:
For more information about this product please call The Dow Chemical Company.

North America: 1-800-447-4369
Latin America: (+55) 11-5184-8722
Europe: (+31) 11-567-2626
Asia/Pacific: (+60) 3-7965-5392
http://www.dow.com/pusystems/index.htm

Kerto® LVL
Q-panel

Kerto® LVL Q-panel is a load-bearing and dimensionally stable product that can be used in both horizontal and vertical structures. Q-panel can be used in the most demanding applications. Use of large Q-panel ensures material efficiency and minimizes installation time.

Kerto LVL Q-panel is made of 3 mm thick strength graded softwood veneers of which approximately 20 % are oriented in crosswise direction. The veneers are bonded with weather- and boil-resistant phenol formaldehyde adhesive. Q-panel has outstanding strength-to-weight ratio. Crosswise veneers ensure excellent dimensional stability and enhance the transverse strength and stiffness of the panel.

Q-panel is an ideal material for load-bearing applications including floor, wall and roof elements due to its stiffness, strength properties and light weight. It can be used in both horizontal and vertical applications.

Applications

Structural applications:
- Panel product for roof, floor and wall constructions
- High and slender beams
- Headers and lintels
- Portal frames

Industrial applications:
- Free shaped beams and panels (CNC machining)
- Components for prefabricated roof, floor and wall elements and modules
- Doors and windows
- Concrete formwork

Major advantages

- **Strong and rigid**
- **Excellent strength-to-weight ratio**
- **Dimensional stability improved against warp and twist**
- **Great workability and quick to install**
- **Easy to fasten, nail and drill**
- **Ensures material efficiency with customised product dimensions**
- **High and slender beams for energy efficient constructions**
- **Large panels up to 2,500 mm wide, 20 m long**
- **Easy to design with free Finnwood software**
- **Made of sustainable northern wood and PEFC certified**
- **Kerto LVL (1 m³) contains the stored carbon equivalent to 794 kg CO_2**

Metsä

Polychem Systems

Technical Data Sheet EN

PUREX WG 2030 FAN

Issue date 09.03.2022
Revision date 19.08.2022

Product description

Two-component system for producing rigid polyurethane foam applied by pouring.

It contains no CFC, HCFC and HFC.

Recommended for filling empty spaces.

Two components:	Component A	Component B
Component name	PUREX WG 2030 FAN A	PUREX B
State of aggregation	liquid	liquid
Colour	colourless to pale yellow	brown
Viscosity at 25°C [mPas]	500 ± 150	200 ± 50
Density at 25°C [g/cm³]	1,08 ± 0,02	1,23 ± 0,01

Application method recommended

The system can be applied in manual or machine moulding.

Component A should be thoroughly mixed before use.

Moulding surfaces should be covered with suitable release agent to enable the profile easy taking out of the mould. Demould time of the foam should be determined experimentally because it depends on components temperature, ambient temperature, mold temperature and molded mass of the system and geometry of the molded element.

In the case elements with facing are moulded use mouldings and presses heated up to 30°C minimum is recommended for suitable adhesion of the foam to the facing providing and fragility occurrence at the surface elimination. Some facing materials require preliminary preparation of the surface before the polyurethane system application.

The material final properties after [h]	24
Ambient temperature during application [°C]	18 - 24
Components temperature recommended [°C]	18 - 22
Mould / press temperature recommended [°C]	30 - 45

Technological properties*

Component A:B ratio - by weight	100 : 160
Raw materials temperature [°C]	20
Cream time [s]	15 - 25
Gel time [s]	140 - 190
Tack-free time [s]	290 - 400
Free rise density [kg/m³]	29 - 34

Physical and mechanical product properties*

Minimum density of the foam core in the product acc. to EN 1602 [kg/m³]	45
Compression strength at 10% deformation acc. to EN 826 [kPa]	≥ 120
Thermal conductivity coefficient at 10°C acc. to EN 12667 [W/mK]	0,022 - 0,030
Maximum application temperature [°C]	120
Class of reaction to fire acc. to EN 13501-1	F

Class of reaction to fire acc. to DIN 4102	B3

Transport and storage

Store in dry, well ventilated room, in tightly closed containers. Protect against moisture access and direct exposure to sunrays. Store away from heat sources, in the container originally packaged in a vertical position.

The products should be transported in tightly closed containers.

Permissible temperature during transport [°C]	5 - 25
Recommended storage temperature [°C]	15 - 25
Storage life for component A from manufacture date, if stored in recommended conditions and in original containers:	**3 months**
Storage life for component B from manufacture date, if stored in recommended conditions and in original containers:	**6 months**

*Notes

Data presented in this information have been obtained during the system foaming in model conditions. The results obtained when foaming in other conditions can be slightly different from published.

The viscosity test was performed according to the internal procedure.

The system application instruction is available if requested. Polychem Systems company offers its assistance at the system implementation and application in client's manufacture.

Every time the user is obliged to check the product and auxiliary agents usefulness for his intentional use.

The user is obligated to have a valid technical data sheet and safety data sheet of the product, which is provided by the manufacturer during the sale and every time on the customer's request.
Prior to processing the user must carefully read aforementioned documentation and follow the rules of procedure for product use.

DEVENTER | Member of Roto Group

TECHNICAL DATA SHEET

PVC 58º Shore A

M 5018

58º Shore A	**ISO 868**
- Density: 1.16g/cm³	ISO 1183-1
- Pull strength: 11 Mpa	ISO 527
- Tear stretch: 440 %	ISO 527
- Tear force: 31 N/mm²	ISO 34-B
- Pressure deformation rest: 20% (24h/23°C)	ISO 815
- Pressure deformation rest: 60% (24h/23°C)	ISO 815

Working Temperature:
- -10º to +55º C

Physical Characteristics
- Color stability
- Ozone Resistant N/A

Paint Compatibility:
The material used in DEVENTER M is **NOT** compatible with thinned acrylic paints and alkyd resin paints containing conventional solvents. Paint and coatings, of which the properties are unknown must be tested for compatibility in contact with the weather seals.

Available colours:

ift ZERTIFIZIERT CERTIFIED
Management Systems
DIN EN ISO 9001 – Quality
Reg.-Nº: 791 7011541