

NEW !
Now with ipasol ultraselect
high-tech solar control glazing



Building with Glass

Transparent Solutions
for Windows and Façades

Glass brings life into the house

Modern architecture without glass is inconceivable. Combined with innovative technology, this ancient material still gleams with timeless, transparent beauty. Whether in functional windows, attractive façade designs or creative interior partitions: High-tech functional glazing connects internal spaces and landscapes, enhances the quality of residential and commercial rooms, lets the sunshine in and saves energy.

Energy-saving building is the greatest architectural challenge of our time: The energy prices will continue to rise. Furthermore, most existing buildings would not meet the specifications now applicable to new buildings. Clearly, there is enormous potential to save energy in the building stock, which only innovative concepts can tap. The iplus E product family of low-e coated glazing can thus make a decisive contribution toward mitigating climate change.

Interpane offers a wide spectrum of high-quality branded products. Our glazing easily meets legal specifications – and offers exciting aesthetic perspectives at the same time. Uncompromising quality is united with technical performance.

Accompany us as we explore the fascinating world of glass – and let yourself be inspired!



Product Overview

Energy-efficient glazing

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- ⊖ iplus E
- ⊖ iplus low-E triple glazing
- ⊖ iplus 3E and iplus 3CE
- ⊖ iplus 3LS and iplus 3CLS
- ⊖ iplus CE

Multi-functional glazing

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- ⊖ iplus city E

Sound-insulating glazing

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- ⊖ iplus E/ipaphon

Climate glazing

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- ⊖ iplus sun

Warm edge seal

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- ⊖ Interpane Thermo-System

Solar-control and spandrel glazing

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- ⊖ ipasol – intelligent solar control
- ⊖ ipacolor spandrel elements

Safety glass

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- ⊖ ipasafe thermally toughened glass, heat-strengthened glass, laminated safety glass and ipasafe Alarm

Insulating glazing with glazing bars

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- ⊖ Interpane insulating glazing units with “Swiss Cross” glazing bars
- ⊖ Interpane insulating glazing units with “Viennese” glazing bars

The technical specifications given in the text of this brochure are rated values according to EN 673 or EN 410.

Energy conservation affects all of us

The global market price for energy is rising – and the end is not in sight. Today, it is already clear: We must find a completely new basis to deal with energy. This is the only way that we can contribute to a positive CO₂ balance – and still maintain our standard of living.

Various European governments have already reacted: in Germany, for example, an energy passport documenting the total energy efficiency of a building must be made available to a potential buyer or tenant. This applies both to new buildings and the existing building stock. Thus, the expected energy costs can be easily recognised.

One type of basic coated glass – many applications

Our iplus basic coated glass is the foundation for a whole range of high-quality insulating glazing products: By modifying the glazing configuration, position of the coating or choice of inert gas to fill the space between the panes, the glazing can be tuned to meet extremely diverse specifications – and offers the right solution for every building project.

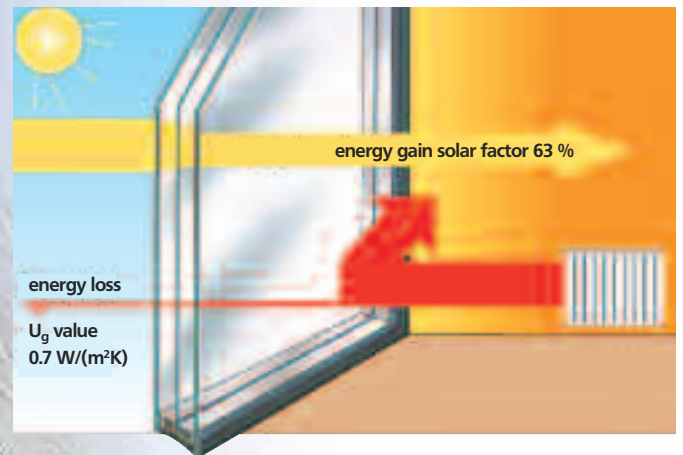
Act now with a view to the future

Every investment today in effective thermal insulation will bring returns. There are no risks involved in iplus E double glazing. For example, anyone who renovates and replaces old glazing with iplus E will profit from a significant insulating effect that can reach 1.1 W/(m²K).

If additional, optimised thermal insulation is envisaged, then triple glazing should be considered – iplus 3E or iplus 3LS are candidates. The triple solution can make a significant contribution to highly efficient energy and cost management, particularly in a new building or together with new window frames.



iplus E



Energy performance of iplus 3LS energy-efficient glazing.

iplus E – the basis for a positive energy balance

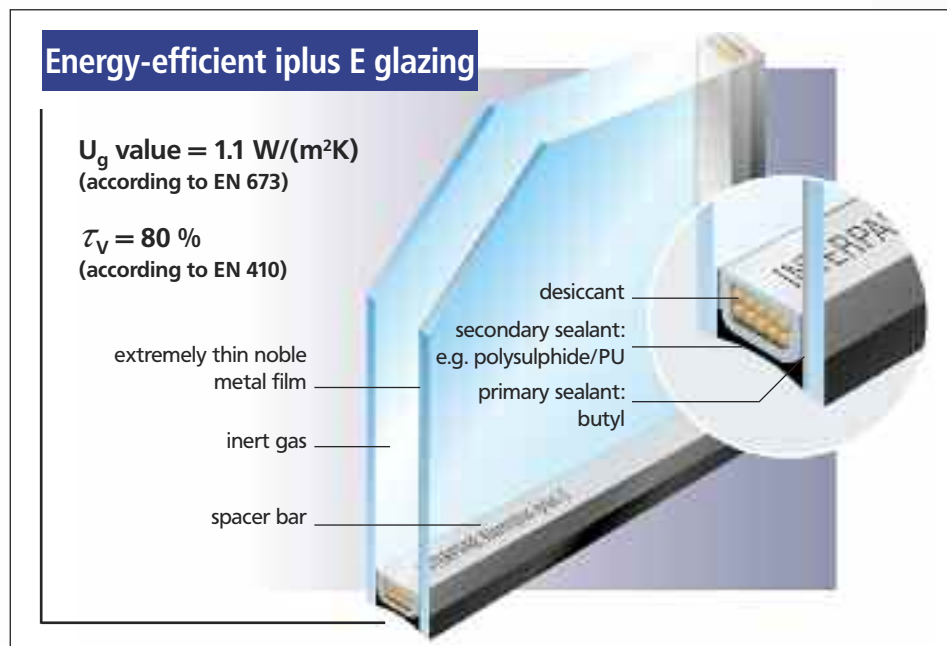
iplus E is a leading product in every aspect: Optimal light transmittance, high solar gains, colour neutrality and similar appearance even to uncoated double glazing make it a benchmark for all coated insulating glazing products.

Innovative coating technology

iplus E consists of a pane of float glass and a pane of basic coated glass, which are separated by a spacer bar of the desired width – most commonly 16 mm.

The exemplary U_g value of $1.1 \text{ W/(m}^2\text{K)}$ according to EN 673 is achieved by additionally filling the hermetically sealed space between the panes with argon.

iplus E



product name	configuration outer pane/ space/ inner pane	U_g value according to EN 673	rated light and solar-radiation properties according to EN 410			thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	general colour rendering index for transmittance					
	mm	$\text{W/(m}^2\text{K)}$	%	%	–	mm	kg/m^2	cm	m^2	–
iplus neutral E	4/16/4	1.1	62	80	97	24	20	141 x 240	3.40	1 : 6
iplus neutral E	5/16/6	1.1	61	79	96	27	27	245 / 300	6.00	1 : 10
iplus neutral E	6/16/6	1.1	59	78	96	28	30	250 / 400	8.00	1 : 10
iplus neutral E	4/14/4	1.2	62	80	97	22	20	141 x 240	3.40	1 : 6
iplus neutral E	5/14/6	1.1	61	79	96	25	27	245 / 300	6.00	1 : 10
iplus neutral E	6/14/6	1.1	59	78	96	26	30	250 / 400	8.00	1 : 10
iplus neutral E	4/12/4	1.3	62	80	97	20	20	141 x 240	3.40	1 : 6
iplus neutral E	5/12/6	1.3	61	79	96	23	27	245 / 300	6.00	1 : 10
iplus neutral E	6/12/6	1.3	59	78	96	24	30	250 / 400	8.00	1 : 10

- The customer ordering our products is responsible for ensuring that the glass thickness is dimensioned correctly according to the applicable technical regulations.
- The specified rated values refer to the testing conditions and the application scope of the referenced standard. Non-vertical mounting leads to changes in the values.
- Tolerances apply to all technical data according to the INTERPANE tolerance handbook

Larger dimensions are possible – please ask us!

Triple glazing from Interpane meets the highest aesthetic and energy-related expectations – and guarantees ideal indoor comfort. Thermal losses are reduced drastically and the energy efficiency of the building is increased noticeably.

Triple glazing scores points everywhere

Triple glazing has long been established for lowest-energy and passive buildings. Now that energy prices are exploding and the need to cut down CO₂ emissions is self-evident, the technology has convinced the entire building sector – and has become just as interesting for conventional residential construction as for building renovation.

Triple insulating glass – a few years ago just an exception – becomes more and more the architectural standard. Years ago the 3. WSchVo ensured that uncoated insulating glass disappeared from the market, now the EnEV 2009 causes with tougher requirements a continuously rising market share of modern triple insulating glass.

iplus 3E and iplus 3CE

iplus 3E and iplus 3CE from our passive-house series have proven themselves repeatedly and are well known in the branch: U_g values down to 0.5 W/(m²K) according to EN standards help to minimise energy losses.

iplus 3E and iplus 3CE are combined with iplus E basic coated glass.

iplus 3LS and iplus 3CLS

Interpane has developed a special type of basic coated glass specifically for energy-optimised triple glazing, which takes account of the particular physical conditions found in this glazing configuration.

The result is a clearly improved total solar energy transmittance value (solar factor or g value) for iplus 3LS of 63 %. Despite this optimisation with regard to solar gains, a U_g value of down to 0.7 W/(m²K) according EN standards is also achieved here.

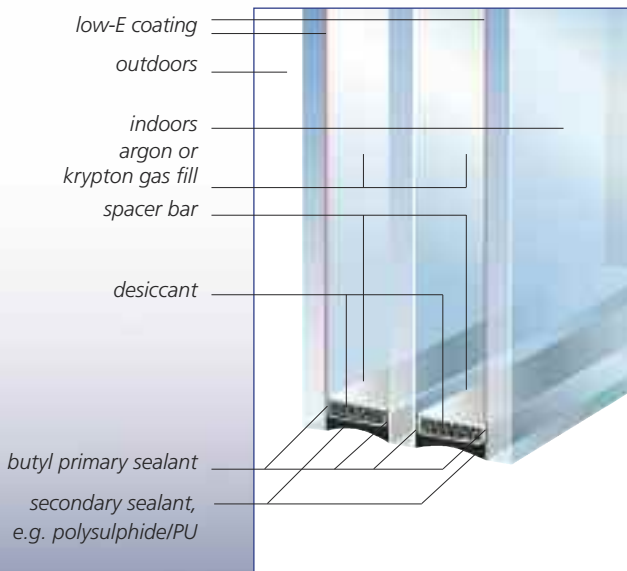
Energy-efficient edge seals

The excellent energy performance of high-quality triple glazing can be further optimised in the window by using thermally improved edge seal systems. These raise the efficiency of the entire window construction.

Recommended component for passive buildings

The renowned “Passivhausinstitut Dr. Feist” in Darmstadt specifies a U_g value of ≤ 0.80 W/(m²K) as a comfort criterion. In addition, the accompanying energy criterion defines a positive energy balance for the glazing unit.

Interpane offers iplus triple glazing units, which fulfil the criteria of the “Passivhausinstitut”.



iplus 3LS

iplus 3CLS

iplus 3E

iplus 3CE



U_g value down to 0.5 W/(m²K) according to EN 673.

product name	configuration outer pane/ space/ centre/ space/ inner pane	U _g value according to EN 673	rated light and solar-radiation properties according to EN 410			thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	general colour rendering index for transmittance					
	mm	W/(m ² K)	%	%	–	mm	kg/m ²	cm	m ²	–
iplus 3E	4/16/4/16/4	0.6	50	72	96	44	30	141 x 240	3.40	1 : 6
iplus 3E	4/14/4/14/4	0.6	50	72	96	40	30	141 x 240	3.40	1 : 6
iplus 3E	4/12/4/12/4	0.7	50	72	96	36	30	141 x 240	3.40	1 : 6
iplus 3CE	4/12/4/12/4	0.5	50	72	96	36	30	141 x 240	3.40	1 : 6
iplus 3CE	4/10/4/10/4	0.6	50	72	96	32	30	141 x 240	3.40	1 : 6

Coating on positions 2 and 5.

product name	configuration outer pane/ space/ centre/ space/ inner pane	U _g value according to EN 673	rated light and solar-radiation properties according to EN 410			thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	general colour rendering index for transmittance					
	mm	W/(m ² K)	%	%	–	mm	kg/m ²	cm	m ²	–
iplus 3LS	4/16/4/16/4	0.7	61	73	98	44	30	141 x 240	3.40	1 : 6
iplus 3LS	4/14/4/14/4	0.7	61	73	98	40	30	141 x 240	3.40	1 : 6
iplus 3LS	4/12/4/12/4	0.8	61	73	98	36	30	141 x 240	3.40	1 : 6
iplus 3CLS	4/12/4/12/4	0.6	61	73	98	36	30	141 x 240	3.40	1 : 6
iplus 3CLS	4/10/4/10/4	0.7	61	73	98	32	30	141 x 240	3.40	1 : 6
iplus 3LS*	4/16/4/16/4	0.7	63	74	99	44	30	141 x 240	3.40	1 : 6
iplus 3LS*	4/14/4/14/4	0.7	63	74	99	40	30	141 x 240	3.40	1 : 6
iplus 3LS*	4/12/4/12/4	0.8	63	74	99	36	30	141 x 240	3.40	1 : 6

Coating on positions 3 and 5. * Outer pane of clear float glass.

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- The specified rated values refer to the testing conditions and the application scope of the referenced standard.
Non-vertical mounting leads to changes in the values.
- Tolerances apply to all technical data according to the INTERPANE tolerance handbook
- For optical reasons, the use of black spacer bars is recommended.

Larger dimensions are possible – please ask us!



iplus CE - Krypton insulates better

Compared to the well-established iplus E generation, iplus CE goes an important technological step further. The space between the panes is filled with the valuable inert gas, krypton, instead of argon.

As a result, a U_g value down to $1.0 \text{ W}/(\text{m}^2\text{K})$ according to EN 673 can be achieved – depending on the specific configuration.

iplus CE



product name	configuration outer pane/ space/ inner pane	U_g value according to EN 673	rated light and solar-radiation properties according to EN 410			thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	general colour rendering index for transmittance					
	mm	$\text{W}/(\text{m}^2\text{K})$	%	%	–	mm	kg/m^2	cm	m^2	–
iplus CE	4/10/4	1.0	62	80	97	18	20	141 x 240	3.40	1 : 6

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- The specified rated values refer to the testing conditions and the application scope of the referenced standard. Non-vertical mounting leads to changes in the values.
- Tolerances apply to all technical data according to the INTERPANE tolerance handbook.

Larger dimensions are possible – please ask us!



Multi-functional glazing

iplus city E – safer and lovelier homes

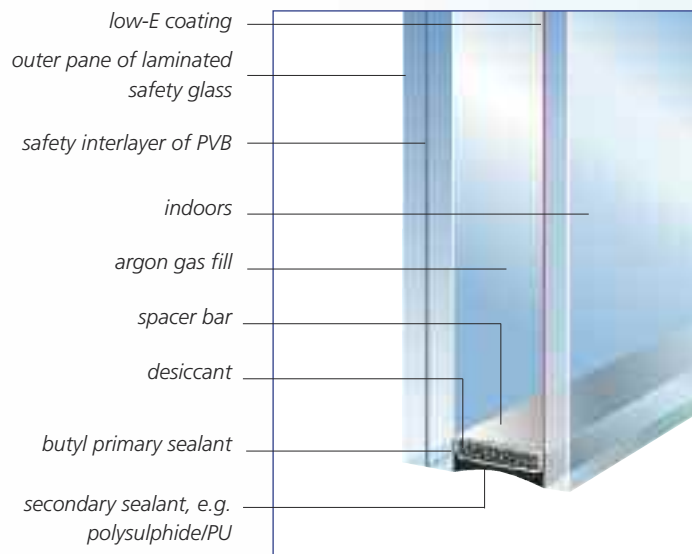
Quietness, security and energy efficiency: Three essential requirements for anyone who lives in a desirable urban location. The innovative glazing configuration of iplus city E ensures a threefold gain in the quality of life.

Three functions in one glazing product

The multi-functional insulating glazing product, iplus city E, combines three functions in one unit:

- **quietness** - the asymmetrical combination of panes contributes decisively to sound insulation
- **security** - the use of Class P4A laminated safety glass protects against burglary
- **energy efficiency** - the innovative iplus E low-E coating and the gas fill ensure effective thermal insulation

A real multi-tasker, iplus city E thus meets all expectations at once – for lovelier homes without worries



U_g value: 1.1 W/(m²K) according to EN 673

iplus city E



product name	configuration outer pane/ space/ inner pane	U_g value according to EN 673	rated light and solar-radiation properties according to EN 410			rated sound-insulation values according to EN 20140 EN ISO 717					resistance to manual attack according to EN 356	thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	general colour rendering index for transmittance	R_{w1}	C	C_{tr}	$C_{100-5000}$	$C_{100-5000}$						
	mm	W/(m ² K)	%	%	-	dB	dB	dB	dB	dB	-	mm	kg/m ²	cm	m ²	-
iplus city E	10/(P4A)16/4	1.1	55	77	96	37	-2	-6	-1	-6	P4A	30	32	141x240	3.40	1 : 6
iplus city E	10/(P4A)16/6	1.1	55	77	95	40	-2	-7	-1	-7	P4A	32	37	250/400	8.00	1 : 10

- Please note that for thicker panes, the intrinsic green/yellow colouring of the insulating glass units becomes more evident.
- The customer ordering our products is responsible for ensuring that the glass thickness is dimensioned correctly according to the applicable technical regulations.
- The specified rated values refer to the testing conditions and the application scope of the referenced standard. Non-vertical mounting leads to changes in the values.
- Tolerances apply to all technical data according to the INTERPANE tolerance handbook.

Larger dimensions are possible – please ask us!

iplus E/ipaphon

Noise engenders stress. Innovative sound-insulating glazing is a safe choice when it comes to reducing stress at work and at home. iplus E/ipaphon combines our established thermal insulating concepts with effective sound insulation.

The right solution for every type of noise
Any noise problem can be effectively combated with iplus E/ipaphon: Numerous different configurations for insulating glazing allow customised solutions for each individual case. All variants of iplus E/ipaphon have one feature in common: our proven iplus E low-E coating. In addition, some types are filled with krypton (iplus CE/ipaphon).

product name	configuration outer pane/ space/ inner pane	U _g value according to EN 673	rated light and solar-radiation properties according to EN 410			rated sound-insulation values according to EN 20140 EN ISO 717					thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	general colour rendering index for transmittance	R _w	C	C _{tr}	C ₁₀₀₋₅₀₀₀	C _{tr 100-5000}					
	mm	W/(m ² K)	%	%	-	dB	dB	dB	dB	dB	mm	kg/m ²	cm	m ²	-
iplus E/ipaphon 36/26-1.1	6/16/4	1.1	59	79	96	36	-2	-5	-1	-5	26	25	141 x 240	3.40	1 : 6
iplus E/ipaphon 37/28-1.1	8/16/4	1.1	58	79	96	37	-2	-5	-1	-5	28	30	141 x 240	3.40	1 : 6
iplus E/ipaphon 37/29 V-1.1 ³⁾	9(P2A)/16/4	1.1	56	79	96	37	-2	-6	-1	-6	29	33	141 x 240	3.40	1 : 6
iplus E/ipaphon 39/31 V-1.1 ¹⁾	6/16/8VSG	1.1	56	77	95	39	-3	-7	-2	-7	31	35	225 / 400	8.00	1 : 10
iplus E/ipaphon 39/34-1.1 ²⁾	10/20/4	1.1	57	78	96	39	-2	-6	-1	-6	34	35	141 x 240	3.40	1 : 6
iplus E/ipaphon 43/36 V-1.1 ¹⁾	8/16/12VSG	1.1	54	75	93	43	-2	-6	-1	-6	36	51	250 x 400	10.00	1 : 10
iplus CE/ipaphon 37/22-1.1	6/12/4	1.1	60	79	96	37	-3	-7	-2	-7	22	25	141 x 240	3.40	1 : 6
iplus CE/ipaphon 37/26-1.1	6/16/4	1.1	60	79	96	37	-3	-8	-2	-8	26	25	141 x 240	3.40	1 : 6
iplus CE/ipaphon 39/26-1.1	10/12/4	1.1	57	78	96	39	-3	-7	-2	-8	26	35	141 x 240	3.40	1 : 6
iplus CE/ipaphon 40/30-1.1	10/16/4	1.1	57	78	96	40	-4	-9	-3	-9	30	35	141 x 240	3.40	1 : 6
iplus CE/ipaphon SF 43/31SF-1.1 ⁴⁾	SF9/16/6	1.1	55	77	95	43	-3	-8	-2	-8	31	36	250 / 400	8.0	1 : 10
iplus CE/ipaphon SF 49/38SF-1.1 ⁴⁾	SF13/16/SF9	1.1	52	74	93	49	-3	-9	-2	-9	38	52	260 / 410	9.60	1 : 10
iplus E/ipaphon S 41/31VG-1.1	VG9/16/6	1.1	55	77	95	41	-2	-7	-1	-7	31	36	250 / 400	8.00	1 : 10
iplus E/ipaphon S 44/35VG-1.1	VG9/16/10	1.1	54	75	94	44	-2	-6	-1	-6	35	46	250 x 400	10.00	1 : 10
iplus E/ipaphon S 45/39VG-1.1	VG13/16/10	1.1	52	74	93	45	-2	-5	-1	-5	39	56	250 / 400	8.90	1 : 10
iplus E/ipaphon S 48/38VG-1.1	VG13/16/VG9	1.1	52	74	93	48	-2	-7	-1	-7	38	52	260 / 410	9.60	1 : 10
iplus E/ipaphon SF 41/31SF-1.1 ⁴⁾	SF9/16/6	1.1	55	77	95	41	-3	-8	-2	-8	31	36	250 / 400	8.00	1 : 10
iplus E/ipaphon SF 45/35SF-1.1 ⁴⁾	SF9/16/10	1.1	54	75	94	45	-3	-8	-2	-8	35	46	250 x 400	10.00	1 : 10
iplus E/ipaphon SF 46/37SF-1.1 ⁴⁾	SF11/16/10	1.1	53	75	93	46	-2	-6	-1	-6	37	51	250 x 400	10.00	1 : 10
iplus E/ipaphon SF 48/38SF-1.1 ⁴⁾	SF13/16/SF9	1.1	52	74	93	48	-2	-8	-1	-8	38	52	260 / 410	9.60	1 : 10
iplus E/ipaphon SF 50/42SF-1.3 ⁴⁾	SF13/16/SF13	1.3	52	73	92	50	-2	-7	-1	-7	42	62	260 / 410	9.60	1 : 10
iplus E/ipaphon SF 52/46SF-1.3 ⁴⁾	SF17/16/SF13	1.3	51	73	91	52	-1	-5	0	-5	46	72	260 / 410	9.60	1 : 10

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- Tolerances apply to all technical data according to the INTERPANE tolerance handbook.

1) Coating on pos. 2.

2) For a ratio of side lengths of > 2:1, we recommend that the thinner pane be made of thermally toughened safety glass.

3) P2A according to EN 356

4) iplus E/ipaphon SF with a 0.76 mm interlayer has safety properties equivalent to laminated safety glass according to the "Technical guidelines on use of linearly supported glazing".

Larger dimensions are possible – please ask us!

Noise doesn't have a chance

Depending on the glazing type, the innovative sound-insulation effect of our iplus E/ipaphon products is based on

- an asymmetrical combination of pane thicknesses and a wider space between them (ipaphon)
- sound-insulating interlayers (ipaphon S)
- the use of an innovative sound-insulating interlayer with extra safety features (ipaphon SF)

By combining these factors, sound-reduction indices up to $R_w = 52$ dB can be achieved.



product name	configuration outer pane/ space/ centre/ space/ inner pane	U_g -value according to EN 673	rated light and solar radiation properties according to EN 410			rated sound-insulation values according to EN 20140 EN ISO 717					thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	general colour rendering index for transmittance	R_w	C	C_{tr}	$C_{100-5000}$	$C_{tr 100-5000}$					
	mm	W/(m ² K)	%	%	–	dB	dB	dB	dB	dB	mm	kg/m ²	cm	m ²	–
iplus 3E/ipaphon 33/36-0.7	4/12/4/12/4 Ar	0.7	50	72	96	33	-2	-6	-1	-6	36	30	141 x 240	3.40	1 : 6
iplus 3E/ipaphon 36/38-0.7	6/12/4/12/4 Ar	0.7	49	71	95	36	-2	-6	-1	-6	38	35	141 x 240	3.40	1 : 6
iplus 3E/ipaphon 37/40-0.7	8/12/4/12/4 Ar	0.7	48	70	94	37	-1	-6	-1	-6	40	40	141 x 240	3.40	1 : 6
iplus 3E/ipaphon 39/42-0.7	8/12/4/12/6 Ar	0.7	48	70	94	39	-2	-5	-1	-5	42	45	141 x 240	3.40	1 : 6
iplus 3E/ipaphon 43/47 V-0.8	8/12/4/10/12 VSG	0.8	48	67	92	43	-2	-4	-1	-4	47	61	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon 33/36-0.5	4/12/4/12/4 Kr	0.5	50	72	96	33	-2	-5	-1	-5	36	30	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon 36/34-0.6	6/10/4/10/4 Kr	0.6	49	71	95	36	-1	-5	0	-5	34	35	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon 38/38-0.5	6/12/4/12/4 Kr	0.5	49	71	95	38	-2	-6	-1	-6	38	35	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon 39/42-0.5	8/12/4/12/6 Kr	0.5	48	70	94	39	-1	-5	0	-5	42	45	141 x 240	3.40	1 : 6
iplus 3E/ipaphon S 41/43 VG-0.7	6/12/4/12/VG9 Ar	0.7	49	69	93	41	-2	-6	-1	-6	43	46	141 x 240	3.40	1 : 6
iplus 3E/ipaphon SF 41/42 SF-0.7	6/12/4/12/SF8,5 Ar	0.7	49	69	93	41	-2	-7	-1	-7	42	45	141 x 240	3.40	1 : 6
iplus 3E/ipaphon S 42/45 VG-0.7	8/12/4/12/VG9 Ar	0.7	48	68	93	42	-2	-6	-1	-6	45	51	141 x 240	3.40	1 : 6
iplus 3E/ipaphon SF 42/44 SF-0.7	8/12/4/12/SF8,5 Ar	0.7	48	68	93	42	-2	-7	-1	-7	44	50	141 x 240	3.40	1 : 6
iplus 3E/ipaphon S 47/50 VG-0.7	VG11/12/6/12/VG9 Ar	0.7	44	66	91	47	-2	-7	-1	-7	50	62	250 / 400	8.00	1 : 10
iplus 3E/ipaphon SF 46/49 SF-0.7	SF10,5/12/6/12/SF8,5 Ar	0.7	44	66	91	46	-1	-7	0	-7	49	61	250 / 400	8.00	1 : 10
iplus 3CE/ipaphon S 42/43 VG-0.5	6/12/4/12/VG9 Kr	0.5	49	69	93	42	-2	-7	-1	-7	43	46	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon SF 42/42 SF-0.5	6/12/4/12/SF8,5 Kr	0.5	49	69	93	42	-2	-7	-1	-7	42	45	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon S 42/45 VG-0.5	8/12/4/12/VG9 Kr	0.5	48	68	93	42	-2	-7	-1	-7	45	51	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon SF 43/44 SF-0.5	8/12/4/12/SF8,5 Kr	0.5	48	68	93	43	-2	-6	-1	-6	44	50	141 x 240	3.40	1 : 6
iplus 3CE/ipaphon S 48/50 VG-0.5	VG11/12/6/12/VG9 Kr	0.5	44	66	91	48	-3	-8	-2	-8	50	62	250 / 400	8.00	1 : 10
iplus 3CE/ipaphon SF 47/49 SF-0.5	SF10,5/12/6/12/SF8,5 Kr	0.5	44	66	91	47	-2	-8	-1	-8	49	61	250 / 400	8.00	1 : 10

- The customer ordering our products is responsible for ensuring that the glass thickness is dimensioned correctly according to the applicable technical regulations.
- Please note that for thicker panes, the intrinsic green/yellow colouring of the insulating glass units becomes more evident.
- The specified rated values refer to the testing conditions and the application scope of the referenced standard. Non-vertical mounting leads to changes in the values.
- Tolerances apply to all technical data according to the INTERPANE tolerance handbook.
- For a ratio of side lengths of > 2:1, we recommend that the thinner pane be made of thermally toughened safety glass.
- The triple glass ipaphon SF-types were tested with a film thickness of 0.5 mm. Please regard the technical building regulations.

Larger dimensions are possible – please ask us!

iplus sun, the climate glazing product, guarantees light rooms with comfortable temperatures – even with windows and façades that face the south. iplus sun has proven to be particularly suitable in private homes or for the overhead glazing of conservatories.



Innovative coating technology

The secret lies in the innovative coating. Almost invisible to the human eye, a transparent metal coating on the inner surface of the outer pane significantly increases the effectiveness of the climate glazing: The long-wavelength fraction of the solar energy is partly reflected – and overheating in summer is avoided.

Optimal indoor climate – all year round

The result is a comfortable indoor climate throughout the whole year with optimal daylighting, colour neutrality and effective insulation: The heat remains inside during winter, but outside in summer.

Due to its insulating glazing configuration and argon gas fill, iplus sun offers good thermal insulation on a standard basis.

With a solar factor of only 43 % and light transmittance of 71 %, iplus sun offers ideal protection against overheating in summer. And in winter, the climate glazing effectively protects against heat losses – with a U_g value of 1.1 W/(m²K) according to EN 673.



product name	configuration outer pane/ space/ inner pane	U_g value according to EN 673	rated light and solar-radiation properties according to EN 410		shading coefficient	thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance						
	mm	W/(m ² K)	%	%	-	mm	kg/m ²	cm	m ²	-
iplus sun	4/16/4	1.1	43	71	0,54	24	20	141 x 240	3.40	1 : 6
iplus sun	6/16/5	1.1	42	70	0,53	27	27	245 / 300	6.00	1 : 10
iplus sun	6/16/6	1.1	42	69	0,53	28	30	250 / 400	8.00	1 : 10
iplus sun	4/14/4	1.2	43	71	0,54	22	20	141 x 240	3.40	1 : 6
iplus sun	6/14/5	1.1	42	70	0,53	25	27	245 / 300	6.00	1 : 10
iplus sun	6/14/6	1.1	42	69	0,53	26	30	250 / 400	8.00	1 : 10
iplus sun	4/12/4	1.3	43	71	0,54	20	20	141 x 240	3.40	1 : 6
iplus sun	6/12/5	1.3	42	70	0,53	23	27	245 / 300	6.00	1 : 10
iplus sun	6/12/6	1.3	42	69	0,53	24	30	250 / 400	8.00	1 : 10

- The specified rated values refer to the testing conditions and the application scope of the referenced standard. Non-vertical mounting leads to changes in the values.
- The customer ordering our products is responsible for ensuring that the glass thickness is dimensioned correctly according to the applicable technical regulations.
- Tolerances apply to all technical data according to the INTERPANE tolerance handbook.

Larger dimensions are possible – please ask us!

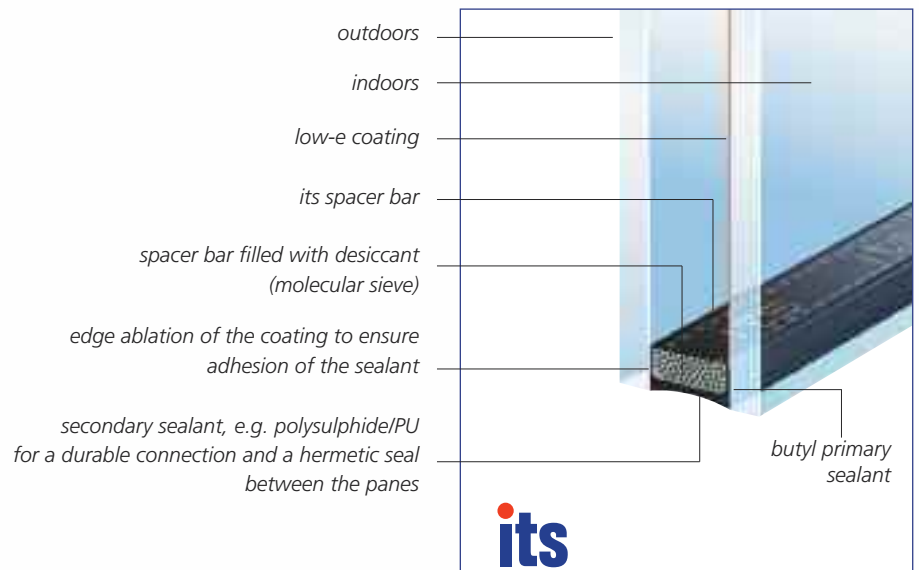
Energy-efficient glazing

Interpane Thermo-System – Complete thermal insulation

The heat losses through the glazing itself have been successfully reduced to a minimum. However, energy leaks are common in the transitional zone between the glass and the window frame, partly caused by materials with different thermal conduction properties – as also happens where the window frame is connected to the wall. Nevertheless, these heat losses can also be reduced.

Innovative edge seal stops the energy leak

The “its” edge seal produced by Interpane minimises heat losses at the edge of the insulating glazing unit. To reduce thermal bridges across the edge of the insulating glazing unit, the traditional aluminium spacer bar is replaced by one with a lower thermal conductivity. The low thermal conductivity is achieved either with a specially designed stainless steel profile or a polymer spacer with metal diffusion barriers (e.g. Thermix, TGI).



With the “its” spacer, the temperature in the glazing/frame boundary zone is improved by up to 4 °C.



ipasol – intelligent solar control for innovative architecture

Contemporary architecture is glass architecture. Large glazed areas set accents all over the world. However, the increasingly daring designs by architects and planners demand yet more innovative glazing technology.

Balanced energy budget

Modern architecture knows almost no bounds to the imagination: If it can be designed, then it can be built. Despite its venerable age, glass as a building material has proven to provide flexible and timeless solutions. Nonetheless, architects and planners are confronted by a multilateral energy problem:

On the one hand, overheating in summer and heat losses in winter must be avoided, despite the large glazed areas. On the other hand, as much natural light as possible should illuminate the rooms.

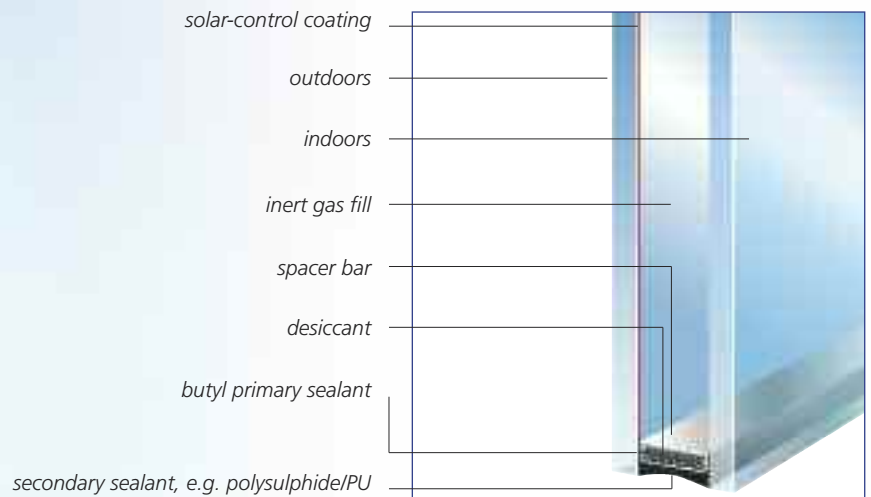
ipasol answers many questions at once

The highly selective coatings of ipasol glazing units succeed in squaring the circle. The characteristics of light transmittance, total solar energy transmittance, thermal insulation and indoor and outdoor viewing performance are constantly recombined in optimised product variations: exactly right for each particular object.

Complete design freedom

As well as expressing ecological responsibility, ipasol also leads to significant cost savings: There is less need to cool in summer or to heat in winter.

Instead of electricity-consuming artificial lighting, pleasant natural daylight illuminates the rooms. And architects and planners can pursue new flights of imagination.



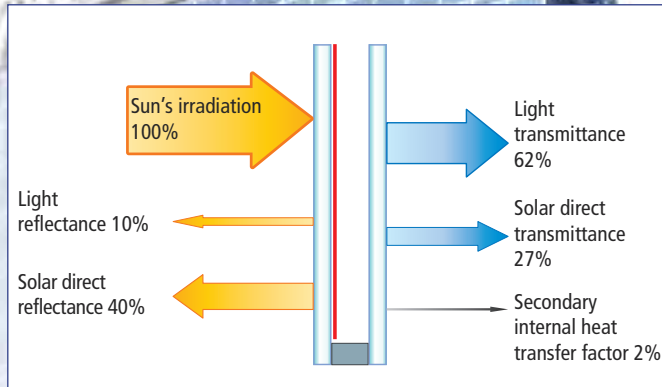
solar factor down to 15 % according to EN 410. U_g value down to 1.1 W/(m²K) according to EN 673.

New! ipasol ultraselect 62/29

Interpane is an innovative specialist; it has, with its ipasol ultraselect 62/29, developed a high-tech low-emissivity solar control glazing that satisfies - with ease - all the demands made of modern façade concepts.

And more besides... With this product and its outstanding selectivity properties Interpane is setting new standards in terms of functionality.

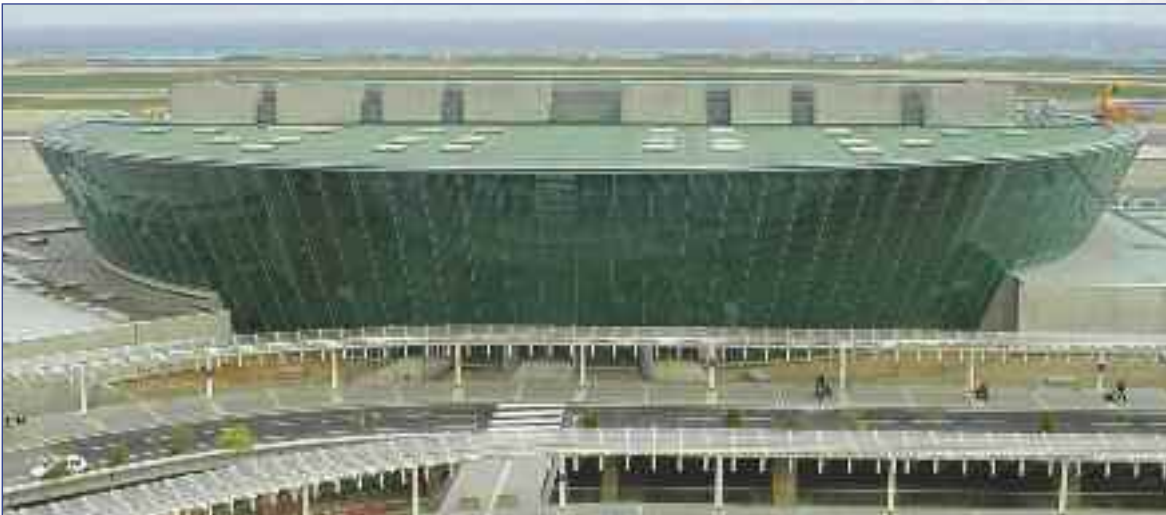
τ_v -value: 62 %
Solar factor: 29 %
Selectivity: 2,14



ipacolor spandrel elements – for homogeneous façades

For each ipasol glazing product, there is also a colour-matched spandrel element. A wide palette of colour variations allows optimal visual matching of windows and spandrels.

Architects and planners thus have the opportunity to create a completely homogeneous exterior in elegant glass. ipacolor can be combined equally well with ipasol solar-control glazing and energy-efficient glazing from the iplus E product family.



ipasal solar-control glazing – only the best of sunlight

Top-quality solar control with optimally combined properties

The innovative combination of minimal total solar energy transmittance (solar factor), high light transmittance (τ_v value) and maximal thermal insulation (U_g value) enables energy-optimised building with ipasal – even with large glazed areas.

In appearance and energy efficiency, the high-quality performance of the ipasal palette has already proven itself impressively in numerous large projects: ipasal reduces air-conditioning costs and offers appealing, glass-clear aesthetics. The transparency and colour neutrality of ipasal are namely close to the physically feasible limits. ipasal creates rooms which are bathed in natural daylight and have a perfectly balanced energy budget.

Highly selective coatings for an intelligent effect

The extremely good performance of the ipasal product range is based on the highly complex coatings used. Up to 15 individual thin films ensure maximum selectivity for sunlight:

Much of the long-wavelength solar radiation is effectively reflected (low solar factor) – while most of the short-wavelength solar radiation (daylight) is transmitted (high τ_v value).

Minimal costs, maximal aesthetics

Due to its excellent performance, ipasal saves money directly: It reduces overheating in summer, and thus cooling costs, which are often several factors higher than heating costs in winter.

Nevertheless, ipasal also features excellent thermal insulation – in winter, heating costs are reduced, the environment benefits and the quality of life is raised.

The psychological improvement in the indoor climate should not be underestimated either: Light, naturally illuminated rooms heighten the motivation, productivity and creativity of the people who live and work in them.





product name	configuration outer pane/ space/ inner pane	U _g value according to EN 673	rated light and solar-radiation properties according to EN 410					selectivity	shading coefficient (solar factor EN 410/0.80)	shading coefficient (solar factor EN 410/0.87)	shading coefficient (solar factor NFRC/0.87)	thickness	mass	max. dimensions	max. area	max. ratio of side lengths
			solar factor	light transmittance	light reflectance outdoors	absorptance of outer pane	absorptance of inner pane									
	mm	W/m ² K	%	%	%	%	%	%	-	-	-	mm	kg/m ²	cm	m ²	-
ipasal platin 25/15	6/16/4	1.1	15	25	28	55	0	1.67	0.19	0.17	0.17	26	25	141 x 240	3.40	1 : 6
ipasal platin 25/15*	8/16/6	1.1	15	24	28	58	1	1.60	0.19	0.17	0.17	30	35	250 / 400	8.00	1 : 10
ipasal sky 30/17*	6/16/4	1.1	17	30	18	63	0	1.76	0.21	0.20	0.20	26	25	141 x 240	3.40	1 : 6
ipasal sky 30/17*	8/16/6	1.1	17	29	18	65	1	1.71	0.21	0.20	0.20	30	35	250 / 400	8.00	1 : 10
ipasal shine 40/22	6/16/4	1.1	22	40	16	53	1	1.82	0.28	0.25	0.24	26	25	141 x 240	3.40	1 : 6
ipasal shine 40/22	8/16/6	1.1	22	39	16	55	1	1.77	0.28	0.25	0.24	30	35	250 / 400	8.00	1 : 10
ipasal platin 47/29	6/16/4	1.1	29	47	40	29	2	1.62	0.36	0.33	0.32	26	25	141 x 240	3.40	1 : 6
ipasal platin 47/29	8/16/6	1.1	29	46	40	33	2	1.59	0.36	0.33	0.31	30	35	250 / 400	8.00	1 : 10
ipasal neutral 48/27	6/16/4	1.1	27	48	16	46	1	1.78	0.34	0.31	0.29	26	25	141 x 240	3.40	1 : 6
ipasal neutral 48/27	8/16/6	1.1	27	47	16	49	2	1.74	0.34	0.31	0.29	30	35	250 / 400	8.00	1 : 10
ipasal neutral 50/27	6/16/4	1.1	27	50	9	48	1	1.85	0.34	0.31	0.29	26	25	141 x 240	3.40	1 : 6
ipasal neutral 50/27	8/16/6	1.1	27	49	9	50	2	1.81	0.34	0.31	0.29	30	35	250 / 400	8.00	1 : 10
ipasal neutral 60/33	6/16/4	1.0	33	60	11	39	1	1.82	0.41	0.38	0.36	26	25	141 x 240	3.40	1 : 6
ipasal neutral 60/33	8/16/6	1.0	32	59	11	43	2	1.84	0.40	0.37	0.34	30	35	250 / 400	8.00	1 : 10
ipasal neutral 61/33	6/16/4	1.1	33	61	13	37	1	1.85	0.41	0.38	0.34	26	25	141 x 240	3.40	1 : 6
ipasal neutral 61/33	8/16/6	1.1	33	60	12	40	2	1.82	0.41	0.38	0.34	30	35	250 / 400	8.00	1 : 10
ipasal ultraselect 62/29	6/16/4	1.0	29	62	10	32	1	2.14	0.36	0.33	0.31	26	25	141 x 240	3.40	1 : 6
ipasal ultraselect 62/29	8/16/6	1.0	29	61	10	35	1	2.10	0.36	0.33	0.30	30	35	250 / 400	8.00	1 : 6
ipasal neutral 69/37	6/16/4	1.0	37	69	12	31	1	1.84	0.46	0.43	0.39	26	25	141 x 240	3.40	1 : 10
ipasal neutral 69/37	8/16/6	1.0	36	67	12	35	2	1.83	0.45	0.41	0.38	30	35	250 / 400	8.00	1 : 10
ipasal neutral 70/39	6/16/4	1.0	39	70	12	33	2	1.79	0.49	0.45	0.41	26	25	141 x 240	3.40	1 : 6
ipasal neutral 70/39	8/16/6	1.0	38	68	12	36	2	1.79	0.48	0.44	0.40	30	35	250 / 400	8.00	1 : 10
ipasal neutral 73/42	6/16/4	1.1	42	73	10	32	2	1.74	0.53	0.48	0.45	26	25	141 x 240	3.40	1 : 6
ipasal neutral 73/42	8/16/6	1.1	41	71	10	36	3	1.73	0.51	0.47	0.44	30	35	250 / 400	8.00	1 : 10
ipasal neutral 72/41 T	6/16/4	1.1	41	72	14	26	2	1.76	0.51	0.47	0.44	26	25	141 x 240	3.40	1 : 6
ipasal neutral 72/41 T	8/16/6	1.1	41	70	14	29	3	1.71	0.51	0.47	0.43	30	35	250 / 400	8.00	1 : 10
ipasal bright neutral	6/16/4	1.1	46	57	35	17	6	1.24	0.58	0.53	0.52	26	25	141 x 240	3.40	1 : 6
ipasal bright neutral	8/16/6	1.1	45	56	34	22	7	1.24	0.56	0.52	0.49	30	35	250 / 400	8.00	1 : 10
ipasal bright white	6/16/4	1.1	50	58	36	5	8	1.16	0.63	0.57	0.56	26	25	141 x 240	3.40	1 : 6
ipasal bright white	8/16/6	1.1	50	58	36	6	9	1.16	0.63	0.57	0.55	30	35	250 / 400	8.00	1 : 10
ipasal bright grey*	6/16/4	1.1	28	28	12	59	4	1.00	0.35	0.32	0.32	26	25	141 x 240	3.40	1 : 6
ipasal bright grey*	8/16/6	1.1	23	22	9	68	4	0.96	0.29	0.26	0.28	30	35	250 / 400	8.00	1 : 10
ipasal bright green*	6/16/4	1.1	31	48	26	55	3	1.55	0.39	0.36	0.33	26	25	141 x 240	3.40	1 : 6
ipasal bright green*	8/16/6	1.1	28	45	24	61	3	1.61	0.35	0.32	0.30	30	35	250 / 400	8.00	1 : 10
ipasal bright bronze*	6/16/4	1.1	29	32	14	57	4	1.10	0.36	0.33	0.33	26	25	141 x 240	3.40	1 : 6
ipasal bright bronze*	8/16/6	1.1	24	25	11	66	4	1.04	0.30	0.28	0.29	30	35	250 / 400	8.00	1 : 10
ipasal bright blue*	6/16/4	1.1	25	34	16	66	2	1.36	0.31	0.29	0.28	26	25	141 x 240	3.40	1 : 6
ipasal bright blue*	8/16/6	1.1	21	29	13	73	2	1.38	0.26	0.24	0.24	30	35	250 / 400	8.00	1 : 10

* The outer pane is made of thermally toughened glass or heat-strengthened glass.

- ipasal can be combined with ipaphon sound-insulating glazing, ipasafe thermally toughened, heat-strengthened or laminated safety glass and cast glass. Bullet-resistant glazing is available on demand. Cast glass or wired glass cannot be coated.
- The customer ordering our products is responsible for ensuring that the glass thickness is dimensioned correctly according to the applicable technical regulations.
- The specified rated values refer to the testing conditions and the application scope of the referenced standard. Non vertical mounting leads to different values..
- Tolerances apply to all technical data according to the INTERPANE tolerance handbook
- If the energy absorptance in the outer pane exceeds 55 % (vertical glazing) or 50 % (inclined glazing), we recommend the use of thermally treated ipasafe safety glass.

Larger dimensions are possible – please ask us!

ipasafe safety glass – the solution to every challenge

In daring and unusual constructions such as cupolas, transparent roofs or glazed lift shafts, ipasafe can create an atmosphere of transparency and lightness. Glass of this type becomes a flexible and strong building material.

In buildings, generally a combination of ipasafe with ipasol solar-control or iplus energy-efficient glazing is installed.

Depending on the specifications, different types of ipasafe are used in glazed constructions:

- **ipasafe ESG**
(= thermally toughened glass)
- **ipasafe TVG**
(= heat-strengthened glass)
- **ipasafe VSG**
(= laminated safety glass)

Of course, ipasafe safety glass is also used in the classic sector of high-security buildings: Interpane delivers practically the whole palette of certified glazing according to DIN, VdS, etc..

ipasafe ESG – thermally toughened glass – safety with reduced risk of injury

If an ipasafe ESG pane is destroyed violently, it breaks into small blunt-edged pieces – the risk of injury is reduced.

Due to the manufacturing process, ipasafe ESG offers significantly more passive safety than normal float glass:

- **higher bending tensile strength**
- **greater resistance to impact and attack**
- **greater resistance to temperature differences**
- **reduced risk of injury**

ipasafe TVG – heat-strengthened glass – safety in construction

ipasafe TVG is also thermally treated but its breaking strength and resistance to temperature differences are not as high as for ipasafe ESG. Monolithic TVG is not safety glass. However, when included as a component of laminated safety glass, the resulting safety glass combines constructional, active and passive safety properties. Thus, ipasafe VSG (laminated safety glass) of TVG is suitable for partitions, overhead glazing and load-bearing glazing elements.

ipasafe VSG – laminated safety glass – safety at its best

ipasafe VSG combines all aspects of active, passive and constructional safety. The secret: At least two panes are connected to each other with one or more elastic PVB interlayers.

If a VSG pane breaks, there are hardly any loose splinters or fragments, as they adhere to the interlayer. Furthermore, penetration of the pane is hindered appreciably by the tough, elastic interlayer. Even if the glass breaks, it still provides excellent protection, depending on the category, for people, objects and buildings.

ipasafe VSG (laminated safety glass) with SentryGlas

SentryGlas interlayers from DUPONT extend the already broad applications of laminated safety glass to further special cases.

Laminated safety glass with the SentryGlas interlayer is five times stronger and up to one hundred times stiffer than conventional glass laminates. With this strength, the glass becomes a structurally active element of the building envelope and thus opens up new design options.

- **Greater residual structural stability**
- **Greater edge stability**
(minimisation of delamination)
- **Greater structural stability and better performance under wind loads**
- **Thinner laminate in total – reduced mass**

ipasafe Alarm – the intelligent glazing product that reacts to danger

An electric alarm circuit, which is connected to an alarm system, is integrated into this thermally toughened glass product. If the pane is destroyed, the electric contact is broken – and the alarm is activated.



ipasafe ESG

ipasafe TVG

ipasafe VSG

ipasafe Alarm



Insulating glazing with glazing bars – hand-crafted appearance – perfect function

“Viennese” glazing bars

Insulating glazing with “Viennese” glazing bars can hardly be distinguished from genuine double glazing with glazing bars. Glazing bars are mounted externally by a glazier at the positions corresponding to the internal spacer bars, which are pre-installed completely within the gas-filled space, without thermal contact to the glass panes. As a result, the visual impression is of conventionally installed double glazing with genuine glazing bars.

Without a load-bearing function, the glazing bars can be made much slimmer, and can also be delivered in a removable version to facilitate cleaning.

“Swiss Cross” glazing bars

Flat aluminium glazing bars are pre-installed in the gas-filled space of insulating glazing units without thermal contact to the panes for the “Swiss Cross” construction. The glazing bar connection does not differ optically from a hand-crafted element and guarantees durable bracing.



“Viennese” glazing bars



“Swiss Cross” glazing bars



Transparent advice: Our consultancy services

Before you start planning – talk with us! We see ourselves as a true partner for planners, architects and producers.

Profit from our many years of practical experience, allow yourself to be inspired during the planning process and clarify all your questions about glass construction and applications with your professional consultant. And maybe we can develop an individual solution to meet your specific requirements. We are also happy to inform you of interesting reference buildings in your area.

You can find plenty of up-to-date information about glass under www.interpane.com – as well as (almost) everything about our products, innovations and interesting objects.

Welcome to the glazing specialists!

Your partners for glazing

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