

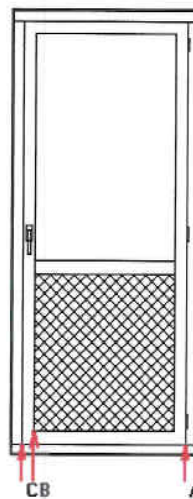
Handled by, department
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KINGAS
Priekulu pag
Cesu rajons
LV-4126
LATVIA

Determination of air permeability and water tightness and resistance to wind load

Test object

Manufacturer: KINGAS
Type: Balcony door with aluminium cladding
Size: 885 x 2085 mm
Condition at arrival: No visible damage
Date of arrival: 2008-10-14
Date of testing: 2008-10-20
SP's serial number: 999



Water tightness according to SS-EN 1027 metod A up to 600 Pa (see attached pictures)

Point A: Leakage between frame and sash
Leakage degree 1 after one minute at 150 Pa
Leakage degree 0 200 Pa

Point B: Leakage infill joint corner
Leakage degree 2 after two minutes at 300 Pa
Leakage degree 3 after two minutes at 600 Pa

Point C: Leakage between frame and sash
Leakage degree 1 after one minute at 450 Pa

Leakage grading
0 No leakage
1 One or a few drops
2 Several drops
3 Minor run
4 Minor flow
5 Considerable flow

Resistance to wind load according to SS-EN 12211 class 3

Test with repeated pressure change up to 600 Pa and storm resistance up to 1800 Pa

No damage noted.

SP Technical Research Institute of Sweden

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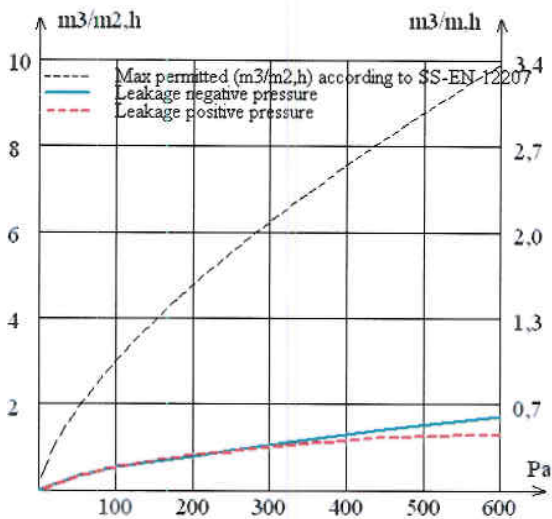
Deformation test up to 1200 Pa

Pressure, Pa	Deflection, mm	
	LHS vertical sash member (measurement length = 1950 mm)	RHS vertical sash member (measurement length = 1950 mm)
0	-0,2	-0,1
1200 positive pressure	0,3	0,2
1200 negative pressure	-0,8	-0,4

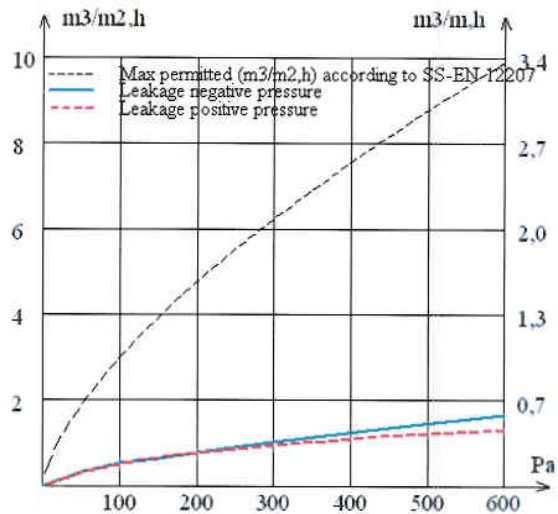
The maximum relative frontal deflection was 0,31 per mille (requirement: <3,3 per mille according to SS-EN 12210 class C)

Air permeability

Testing according to SS-EN 1026 up to 600 Pa



After windloading: Testing according to SS-EN 1026 up to 600 Pa



Conditions of test

The test results refer only to the tested object.

- Equipment used: Test rig invnr 202206 and measuring equipment invnr 200746
- Estimated error margin: Air pressure difference ± 2 Pa, air flow ± 5 % and deformation (wind load) $\pm 0,1$ mm
- Test climate: Air temperature 22 °C, RH 40 %, air pressure 980 hPa
- Water temperature: According to the standard
- Conditioning: Laboratory climate after arrival to SP

SP Technical Research Institute of Sweden
Energy Technology – Building Physics and Indoor Environment

Hans Brolin
 Technical Manager

Richard Dawson
 Technical Officer

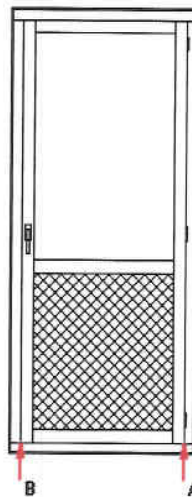
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Determination of air permeability and water tightness and resistance to wind load

Test object

Manufacturer: KINGAS
 Type: Balcony door wood
 Size: 885 x 2085 mm
 Condition at arrival: No visible damage
 Date of arrival: 2008-10-14
 Date of testing: 2008-10-21
 SP's serial number: 998



Water tightness according to SS-EN 1027 metod A up to 600 Pa (see attached pictures)

Point A: Leakage between frame and sash

Leakage degree 2 immediately at 100 Pa
 Leakage degree 3 immediately at 300 Pa
 Leakage degree 4 immediately at 600 Pa

Point B: Leakage between frame and sash

Leakage degree 2 after one minute at 100 Pa
 Leakage degree 3 immediately at 200 Pa
 Leakage degree 4 immediately at 600 Pa

Leakage grading

0 No leakage	3 Minor run
1 One or a few drops	4 Minor flow
2 Several drops	5 Considerable flow

Resistance to wind load according to SS-EN 12211 class 3

Test with repeated pressure change up to 600 Pa and storm resistance up to 1800 Pa

No damage noted.

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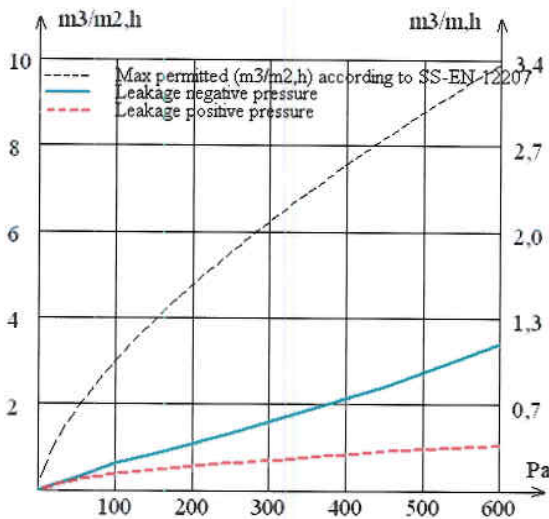
Deformation test up to 1200 Pa

Pressure, Pa	Deflection, mm	
	LHS vertical sash member (measurement length = 1950 mm)	RHS vertical sash member (measurement length = 1950 mm)
0	0,3	0,5
1200 positive pressure	0,6	0,8
1200 negative pressure	-0,2	0,1

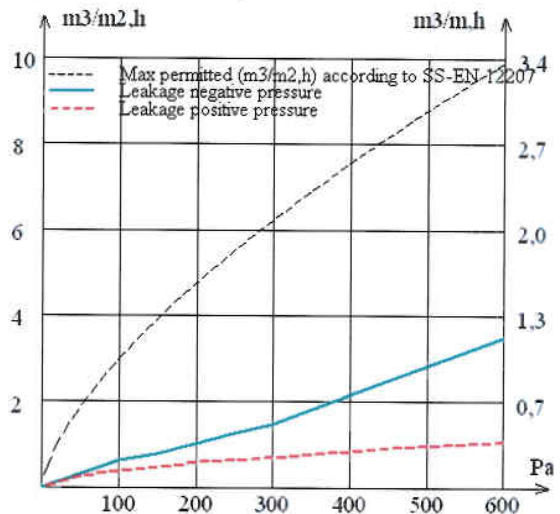
The maximum relative frontal deflection was 0,24 per mille (requirement: <3,3 per mille according to SS-EN 12210 class C)

Air permeability

Testing according to SS-EN 1026 up to 600 Pa



After wind loading: Testing according to SS-EN 1026 up to 600 Pa



Conditions of test

The test results refer only to the tested object.

Equipment used: Test rig invnr 202206 and measuring equipment invnr 200746

Estimated error margin: Air pressure difference ± 2 Pa, air flow ± 5 % and deformation (wind load) $\pm 0,1$ mm

Test climate: Air temperature 19 °C, RH 45 %, air pressure 980 hPa

Water temperature: According to the standard

Conditioning: Laboratory climate after arrival to SP

SP Technical Research Institute of Sweden
Energy Technology – Building Physics and Indoor Environment