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Determination of air permeability, resistance to water penetration and resistance to wind load according to EN 13241-1

(1 appendix)

Test object

Client: SOMMER Antriebs- und Funktechnik GmbH
Product name: Alkur Normtor
Type of door: Residential, overhead, sectional door
Daylight size: Width 3040 mm, Height 2500 mm

The door was supplied and installed by the client in the opening of an airtight chamber, with its exterior facing inwards towards the chamber, see description and pictures in appendix 1.

Summary of classification

Air permeability according to EN 12426:	Class 2
Resistance to water penetration according to EN 12425:	Class 3, 90 Pa
Resistance to wind load according to EN 12424:	Class 5, 1200 Pa

Test procedure

Air permeability

A positive air pressure was established in the chamber and the air leakage was measured at 50 Pa.

The tests were carried out in accordance with EN 12427.

Resistance to water penetration

Water was applied through two horizontal rows of nozzles with eight nozzles on each row. The upper row supplied 2 ± 0.2 l/min of water per nozzle. The lower row supplied 1 ± 0.1 l/min of water per nozzle.

The test was carried out in accordance with EN 12489.

Resistance to wind load

The door was tested in accordance with EN 12444 in an air pressure chamber. Before the test measures were taken to minimize air leakage in the door and its supporting construction. The air pressure in the test chamber was increased in steps in accordance with the different classes given in EN 12424.

The test was carried out in accordance with EN 12444.

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Test results

Air permeability

Leakage at 50 Pa positive pressure:
Classification according to EN 12426:

9.5 m³/h,m²
Class 2

Resistance to water penetration

The test was interrupted after 110 Pa and 40 minutes.

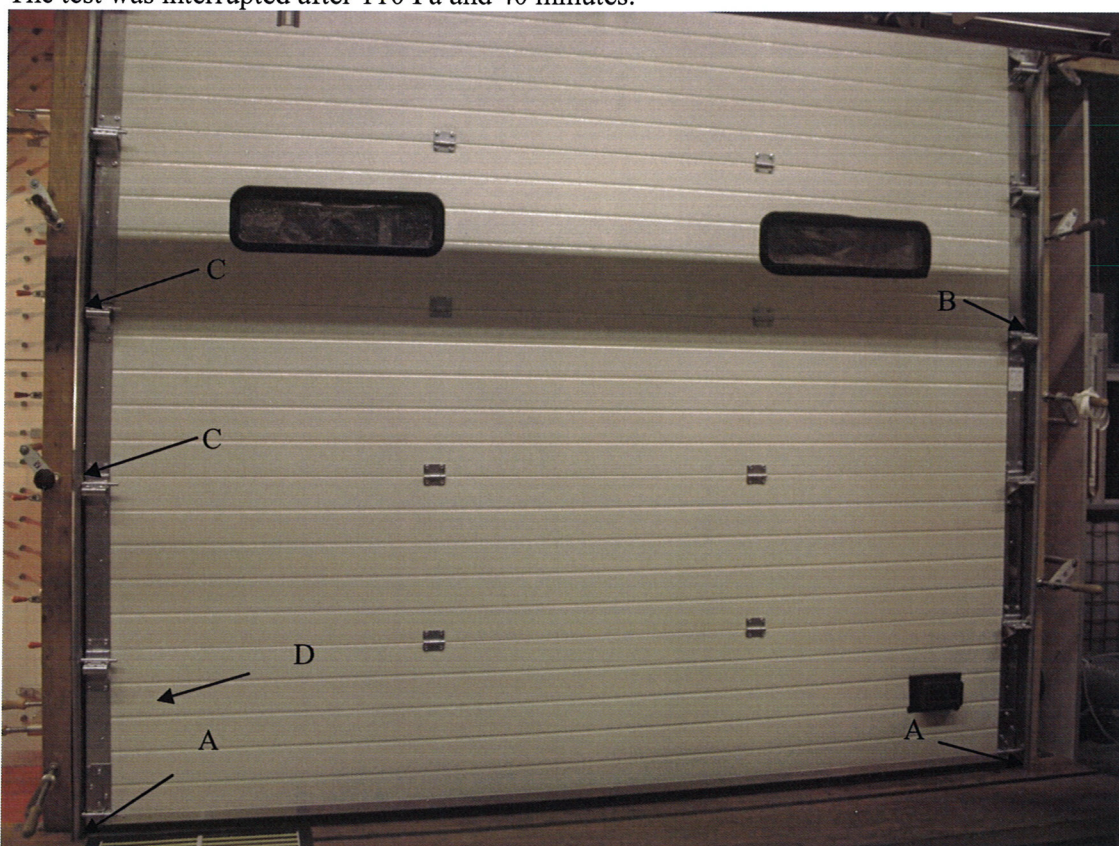


Figure 1. The door as seen from inside.

Air pressure (Pa)	Time (min)	Degree of water leakage at location			
		A	B	C	D
0	0-10	3	0	0	0
10	11-15	3	0	0	0
30	16-20	3	3	0	0
50	21-25	3	3	3	0
70	26-30	3	3	3	0
90	31-35	3	3	3	0
110	36-40	3	3	3	3

Location of leakage:

- A: Leakage at the edge of the bottom sealing
- B: Leakage between the panels at the edge
- C: Leakage between the panels at the edge
- D: Water runnels on the panel from leakage C

Degree of water leakage:

- 0: No leak
- 1: One clinging drop
- 2: Two or more falling or chain drops
- 3: Runs
- 4: Considerable flow

Failure according to leakage D.

Classification according to EN 12425:

Class 3, 90 Pa

Resistance to wind load

The test was interrupted after the inner pressure step at 1650 Pa. After the test there were deformations on the side hinges.

No visible deformations were noted at pressure step, 1320 Pa.

Classification according to EN 12424:

Class 5, 1200 Pa

Conditions of test

The test results refer only to the tested object.

Date of test: 2013-01-28
Place of test: SOMMER test site in Kirchheim/Teck, Germany
Equipment used: Measuring equipment no. 202429, 202733, 202214
Estimated error margin: Air pressure difference $\pm 2\%$, air flow $\pm 5\%$, water flow $\pm 5\%$
Ambient climate: Air temperature 10 °C

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Performed by

Examined by



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Appendix: Description and pictures of the door

Appendix 1

Description of the door

Product name	Alkur Normtor
Daylight size (wxh)	3040 mm x 2500 mm
Type and producer of panels	Alkur-Residential
Thickness of panel	40 mm
Type of tracks	FF 15V / ALK 215V, 2" Tracks and curve
Type of rollers	FF 574-60
Type of slides	FF 420S
Type of side hinges	FF 450 CZ
Type of intermediate hinges	FF 450 HZ
Type of bottom bracket	FF 422
Type of top sealing	FF 1036
Type of bottom sealing	FF 1035 SR
Type of side sealing	FF 1085
Type of window	FF 2370
Type of handle	FF 6441, with extra sealing



Figure 2. Door type Alkur Normtor, mounted in the test rig, as seen from inside.

Appendix 1



Figure 3. Side hinge, slide and roller.

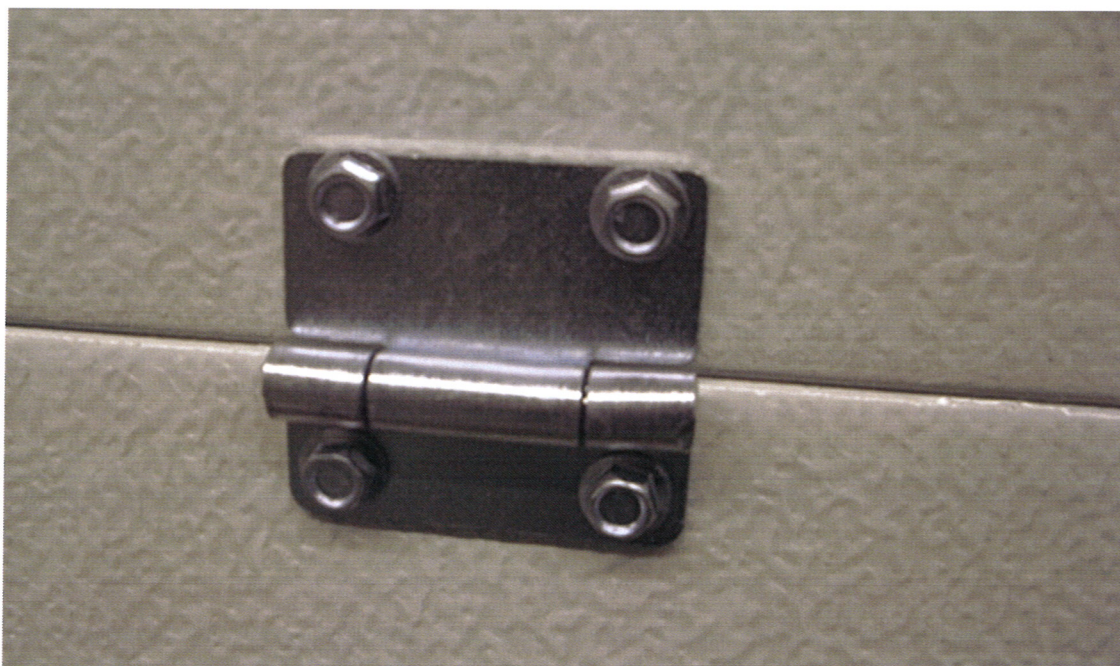


Figure 4. Intermediate hinges.

Appendix 1



Figure 5. Bottom bracket.