

Resistance to wind load

High performance doors of the brand Albany

ASSA ABLOY

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The valid standard for the information relating to wind loads in power-operated doors is DIN EN 12424. This standard defines the classification of the wind loads for doors when closed. To this end, the wind load is understood as the differential pressure from one side of the completely closed door to the other side; there is no information relating to the running performance for a door under wind load.

DIN EN 12424 distinguishes between 5 wind classes, where class 0 provides no information on the wind load and always applies when no measurement is being carried out. The wind classes information for the high performance doors of the brand Albany has been certified by an independent licensed institute. Disregarding various general conditions, such as installation situation and geographic influences, for example, the following table can be used for the approximate conversion of wind speeds.

RESISTANCE TO WIND LOAD DIN EN 12424 ACCORDING TO CLASSES

Wind class	Comparison wind load $P_a = N/m^2$	Wind speed m/s	Wind speed km/h	Beaufort
0	0	0	0	0
1	300	22	80	9
2	450	27	100	10
3	700	34	120	12
4	1000	41	150	13

BEAUFORT SCALE FOR WIND SPEEDS

The Beaufort scale is a scale for classifying winds according to their speed.

Wind force in Beaufort	Wind speed					Recommendation: using doors with wind class
	Dynamic pressure Pascal N/m ²	m/s	km/h	mph	kn	
0	0–0	0,0–0,2	0	0–<1,2	0–<1	0
1	0,1–0,1	0,3–1,5	1–5	1,2–<4,6	1–<4	1
2	2,0–5,9	1,6–3,3	6–11	4,6–<8,1	4–<7	1
3	6,9–17,7	3,4–5,4	12–19	8,1–<12,7	7–<11	1
4	18,6–38,3	5,5–7,9	20–28	12,7–<18,4	11–<16	1
5	39,2–70,6	8,0–10,7	29–38	18,4–<25,3	16–<22	1
6	71,6–116,7	10,8–13,8	39–49	25,3–<32,2	22–<28	1
7	117,7–179,5	13,9–17,1	50–61	32,2–<39,1	28–<34	1
8	180,5–262,9	17,2–20,7	62–74	39,1–<47,2	34–<41	1
9	263,9–364,9	20,8–24,4	75–88	47,2–<55,2	41–<48	1
10	366,9–495,4	24,5–28,4	89–102	55,2–<64,4	48–<56	2
11	496,4–652,4	28,5–32,6	103–117	64,4–<73,6	56–<64	3
12	653,3–836,7	32,7–36,9	118–133	> 73,6	> 64	3
13	837,8–1039,9	37,0–41,4	134–149	> 73,6	> 64	4

Source: <http://de.wikipedia.org/wiki/Beaufortskala>

ASSA ABLOY Entrance Systems is the world's most comprehensive supplier of entrance automation solutions. With our globally recognized product brands Besam, Crawford, Megadoor and Albany, we offer products and services dedicated to satisfying end-user needs for safe, secure, convenient and sustainable operations. With a holistic approach to the flow of goods and people, we create efficient solutions for each business, with the best possible balance of cost, quality and lifetime performance. ASSA ABLOY Entrance Systems is a division within ASSA ABLOY.

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DESCRIPTION OF THE WIND FORCE

The English Admiral, Sir Francis Beaufort, developed the wind scale named after him (Beaufort) to determine the various wind speeds in air movement on the basis of visual indications and without measurement devices.

He categorised the wind speeds into 12 classes according to visible impact, which - from „Calm“ to „Hurricane“ - included certain descriptions.

Wind force in Beaufort	Designation of the wind force	Description of the wind force	Recommendation: using doors with wind class
0	Calm	No air movement, smoke rises vertically	0
1	Light air	Barely noticeable, smoke drifts lightly, air vanes and weathercocks do not move	1
2	Light breeze	Leaves rustle, wind can be felt on face	1
3	Gentle breeze	Leaves and thin twigs move, pennants are stretched	1
4	Moderate breeze	Twigs move, loose paper is raised from the ground	1
5	Fresh breeze	Larger twigs and trees move, wind clearly audible	1
6	Strong breeze	Thick branches move, audible whistling of wire ropes, in overhead lines	1
7	High wind	Trees sway, resistance when walking against the wind	1
8	Gale	Large trees move, window shutters are opened, twigs break off trees, considerable resistance when walking	1
9	Strong gale	Branches break, minor damage to buildings, tiles and chimney stacks are raised from roofs, garden furniture is knocked over and scattered, considerable resistance when walking	1
10	Storm	Trees are uprooted, tree trunks break, garden furniture is blown away, greater damage to buildings, rarely inland	2
11	Violent storm	storm Hefty gusts, severe storm damage, severe damage to forest (rolled lumber), roofs are removed from buildings, cars veer on roads, thick walls are damaged, walking is impossible; very rarely inland	3
12	Hurricane	Heavy storm damage and destruction; very rarely inland	3

Quelle: <http://de.wikipedia.org/wiki/Beaufortskala>

NOTE

Please note that geographic and building influences can considerably change the prevalent wind speeds at the installation venue of the doors. To this end, openings on the opposite side of the building („suction forces“) or large facade surfaces around the door can considerably increase the load on the door.

The wind classes permissible for the high performance doors of the brand Albany can be found in the respectively valid sales materials.



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