

Wind resistance



Results and assessment of the type test

The resistance classes were assigned based on the tests conducted in Centrum stavebního inženýrství a.s. in Zlín according to ČSN EN 13 659(+A1). All external blinds manufactured by ŽALUZIE NEVA s.r.o. are manufactured in compliance with ČSN EN 13659(+A1) and bear the CE mark. Determining the wind resistance of a blind is specified by ČSN EN 13659(+A1) Window shutters - Functional and safety requirements.

The type test results apply to product units for which the technical documentation was provided and where the design, composition of components used, incl. the method of alignment with the structural aperture (installation into a rigid structure aperture), all correspond with the tested samples for which wind resistance was determined.

The results of the determination based on stressing of samples and assessment of structural characteristics

The result of the type test is the classification of the product in the classes of wind stress resistance in relation to the width/dimensions of the product unit for the assessed type of the manufactured screen with manual or power control, corresponding to the design of tested samples and the method of alignment of the assembly with the structural aperture, as described in the table below.

On blinds with specified assembly dimensions (i.e., up to the below-specified max. active surfaces of the assembly wing, max. width x max. height), the bend caused by wind pressure for the declared classes do not cause permanent deformations, do not negatively affect the assembly's functionality and do not create any risk of release from the side guides.

Definition of classes according to the Beaufort wind force scale

Beaufort resistance level	Wind resistance class	Wind speed (km/h)	Wind type	Wind characteristics
0	0	0 to 1	Calm	Smoke rises vertically.
1		2 to 5	Light air	Smoke drift indicates wind direction, still wind vanes.
2		6 to 11	Light breeze	Wind felt on face, leaves rustle, vanes begin to move.
3		12 to 19	Gentle breeze	Leaves and small twigs constantly moving, light flags extended.
4	1	20 to 28	Moderate breeze	Dust, leaves, and loose paper lifted, small tree branches move
5	2	29 to 38	Fresh breeze	Small trees in leaf begin to sway.
6	3	39 to 49	Strong breeze	Larger tree branches moving, umbrellas become difficult to use.
7	4	50 to 61	High wind	Whole trees moving, resistance felt walking against wind.
8	5	62 to 74	Moderate breeze	Twigs breaking off trees, generally impedes progress.
9	6	75 to 88	Gale	Slight structural damage occurs.
10		89 to 102	Strong breeze	Seldom experienced on land, trees broken or uprooted, "considerable structural damage".
11		103 to 117	Violent storm	Widespread damage.
12		over 118	Hurricane	Devastation, carries houses away, moves heavy masses.

Guiding rails

Max. height 5 000 mm (4 400 mm, 4 000 mm)

Width

	0-1 000		1 001-2 000		2 001-3 000		3 001-4 000		4 001-4 500		4 501-5 000		
	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	
S-90	Class	6	9	5	8	4	7	3	6	2	5	1	4
	Max. wind speed (km/h)	≤ 88		≤ 74		≤ 61		≤ 49		≤ 38		≤ 28	
	Max. area (m²)	5,0		10,0		15,0		20,0		20,0		20,0	
	Max. height (mm)	5 000		5 000		5 000		5 000		4 400		4 000	
Z-90	Class	6	9	5	8	4	7	3	6	2	5	1	4
	Max. wind speed (km/h)	≤ 88		≤ 74		≤ 61		≤ 49		≤ 38		≤ 28	
	Max. area (m²)	5,0		10,0		15,0		20,0		20,0		20,0	
	Max. height (mm)	5 000		5 000		5 000		5 000		4 400		4 000	
Z-70	Class	6	9	5	8	4	7	3	6	2	5	1	4
	Max. wind speed (km/h)	≤ 88		≤ 74		≤ 61		≤ 49		≤ 38		≤ 28	
	Max. area (m²)	5,0		10,0		15,0		20,0		20,0		20,0	
	Max. height (mm)	5 000		5 000		5 000		5 000		4 400		4 000	
C-80	Class	5	8	4	7	3	6	2	5	1	4	(0)	3
	Max. wind speed (km/h)	≤ 74		≤ 61		≤ 49		≤ 38		≤ 28		≤ 19	
	Max. area (m²)	5,0		10,0		15,0		20,0		20,0		20,0	
	Max. height (mm)	5 000		5 000		5 000		5 000		4 400		4 000	
C-65	Class	5	8	4	7	3	6	2	5	1	4	(0)	3
	Max. wind speed (km/h)	≤ 74		≤ 61		≤ 49		≤ 38		≤ 28		≤ 19	
	Max. area (m²)	5,0		10,0		15,0		20,0		20,0		20,0	
	Max. height (mm)	5 000		5 000		5 000		5 000		4 400		4 000	
F-80	Class	4	7	3	6	2	5	1	4	(0)	3	(0)	2
	Max. wind speed (km/h)	≤ 61		≤ 49		≤ 38		≤ 28		≤ 19		≤ 11	
	Max. area (m²)	4,0		8,0		12,0		16,0		18,0		20,0	
	Max. height (mm)	4 000		4 000		4 000		4 000		4 000		4 000	

Width

	0-1 000		1 001-2 000		2 001-3 000		3 001-4 000		4 001-4 500		4 501-5 000	
Class	6	9	6	9	5	8	4	7	3	6	2	5
Max. wind speed (km/h)	≤ 88		≤ 88		≤ 74		≤ 61		≤ 49		≤ 38	
Max. area (m²)	5,0		10,0		15,0		20,0		20,0		20,0	
Max. height (mm)	5 000		5 000		5 000		5 000		4 400		4 000	

* Double-sided guides

Cable, cable/guide rail combination

Max. height 2 500 mm

Width

	0-800		801-2 000		2 001-3 500		3 501-4 000		
	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	
Z-90	Class	3	6	2	5	1	4	(0)	3
	Max. wind speed (km/h)	≤ 49		≤ 38		≤ 28		≤ 19	
	Max. area (m²)	2,0		5,0		7,5		10,0	
	Max. height (mm)	2 500		2 500		2 500		2 500	
Z-70	Class	3	6	2	5	1	4	(0)	3
	Max. wind speed (km/h)	≤ 49		≤ 38		≤ 28		≤ 19	
	Max. area (m²)	2,0		5,0		7,5		10,0	
	Max. height (mm)	2 500		2 500		2 500		2 500	
C-80	Class	3	6	2	5	1	4	(0)	3
	Max. wind speed (km/h)	≤ 49		≤ 38		≤ 28		≤ 19	
	Max. area (m²)	2,0		5,0		7,5		10,0	
	Max. height (mm)	2 500		2 500		2 500		2 500	
C-65	Class	3	6	2	5	1	4	(0)	3
	Max. wind speed (km/h)	≤ 49		≤ 38		≤ 28		≤ 19	
	Max. area (m²)	2,0		5,0		7,5		10,0	
	Max. height (mm)	2 500		2 500		2 500		2 500	
F-80	Class	2	5	1	4	(0)	3	(0)	2
	Max. wind speed (km/h)	≤ 38		≤ 28		≤ 19		≤ 11	
	Max. area (m²)	2,0		5,0		8,75		10,0	
	Max. height (mm)	2 500		2 500		2 500		2 500	

Width

	0-800		801-2 000		2 001-3 000		3 001-3 500		
E-50M	Class	2	5	1	4	(0)	3	(0)	2
	Max. wind speed (km/h)	≤ 38		≤ 28		≤ 19		≤ 11	
	Max. area (m²)	2,0		5,0		7,5		8,8	
	Max. height (mm)	2 500		2 500		2 500		2 500	
E-50K	Class	(0)	3	(0)	3	(0)	2	(0)	1
	Max. wind speed (km/h)	≤ 19		≤ 19		≤ 11		≤ 5	
	Max. area (m²)	2,0		5,0		7,5		8,8	
	Max. height (mm)	2 500		2 500		2 500		2 500	

Cable, cable/guide rail combination

Height 2 501 - 4 000 mm

Width

	0-800		801-2 000		2 001-3 500		3 501-4 000		
	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	EN 13 659 (+A1)	Beaufort	
Z-90	Class	2	5	1	4	(0)	3	(0)	2
	Max. wind speed (km/h)	≤ 38		≤ 28		≤ 19		≤ 11	
	Max. area (m²)	3,2		8,0		12,0		16,0	
	Height (mm)	2 501 - 4 000		2 501 - 4 000		2 501 - 4 000		2 501 - 4 000	
Z-70	Class	2	5	1	4	(0)	3	(0)	2
	Max. wind speed (km/h)	≤ 38		≤ 28		≤ 19		≤ 11	
	Max. area (m²)	3,2		8,0		12,0		16,0	
	Height (mm)	2 501 - 4 000		2 501 - 4 000		2 501 - 4 000		2 501 - 4 000	
C-80	Class	2	5	1	4	(0)	3	(0)	2
	Max. wind speed (km/h)	≤ 38		≤ 28		≤ 19		≤ 11	
	Max. area (m²)	3,2		8,0		12,0		16,0	
	Height (mm)	2 501 - 4 000		2 501 - 4 000		2 501 - 4 000		2 501 - 4 000	
C-65	Class	2	5	1	4	(0)	3	(0)	2
	Max. wind speed (km/h)	≤ 38		≤ 28		≤ 19		≤ 11	
	Max. area (m²)	3,2		8,0		12,0		16,0	
	Height (mm)	2 501 - 4 000		2 501 - 4 000		2 501 - 4 000		2 501 - 4 000	
F-80	Class	1	4	(0)	3	(0)	2	(0)	1
	Max. wind speed (km/h)	≤ 28		≤ 19		≤ 11		≤ 5	
	Max. area (m²)	3,2		8,0		14,0		16,0	
	Height (mm)	2 501 - 4 000		2 501 - 4 000		2 501 - 4 000		2 501 - 4 000	

Width

	0-800		801-2 000		2 001-3 000		3 001-3 500		
E-50M	Class	1	4	(0)	3	(0)	2	(0)	1
	Max. wind speed (km/h)	≤ 28		≤ 19		≤ 11		≤ 5	
	Max. area (m²)	3,2		8,0		12,0		14,0	
	Height (mm)	2 501 - 4 000		2 501 - 4 000		2 501 - 4 000		2 501 - 4 000	
E-50K	Class	(0)	2	(0)	2	(0)	1	(0)	(0)
	Max. wind speed (km/h)	≤ 11		≤ 11		≤ 5		≤ 1	
	Max. area (m²)	2,4		6,0		9,0		10,5	
	Height (mm)	2 501 - 3 000		2 501 - 3 000		2 501 - 3 000		2 501 - 3 000	



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