made in germany

ALULUX®

Roller shutter elements manufactured to DIN EN 13659

Wind resistance | Wind load zones

The European standard that helps you make the right decision.

European manufacturers and suppliers in the building materials supply sector are obliged to mark building products with the CE marking on the basis of the **standard DIN EN 13659:2009**.

All Alulux front-mounted roller shutter elements are tested and manufactured to DIN EN 13659. Alulux brand products display the required CE marking. The respective CE marking is affixed visibly, legibly and indelibly to the interior of the roller shutter box. It is easy for installers to comply with guidelines on distributing relevant documentation to end customers, as Alulux produces product documentation that can be distributed to customers through a network of intermediaries.

The entire Alulux production process for roller shutters is certified to ISO 9001:2008.
In order to further guarantee the quality of production processes and to carry out wind load tests to DIN EN 13659, Alulux employs a wind load test facility approved by IFT Rosenheim

(testing institute specialist for windows and doors). The wind load test involves regularly testing the roller shutters to peak negative and positive pressure and under various conditions to make sure they work correctly.

In addition to the tests required for wind load resistance and adherence to the specified operating forces for belt and geared operation, the standard DIN EN 13659 demands a salt-water spray test and a long-term test simulating practical conditions. During these tests, the elements must withstand 10,000 test cycles undamaged. This ensures that Alulux front-mounted roller shutters provide the private, commercial and industrial sector with the greatest possible benefits in terms of efficiency, flexibility and safety.

And seeing as Alulux has never been afraid to push the benchmarks as high as possible, the entire manufacturing process has been tested and certified to DIN EN 13659 by TÜV Nord.

CE marking

The CE marking indicates that a product conforms to legal product, health and safety requirements as stated in specific European technical standards.

Three characteristics of the CE marking

- ✓ The CE marking is intended for technical products (toys, machines, appliances).
- ✓ The CE marking describes the minimum safety requirements
- ✓ The CE marking is a European norm and mandatory conformity mark.

How can I be sure that a roller shutter element conforms to prevailing standards?
The CE marking (in principle a type of "product rating plate") identifies a finished roller shutter element that complies to DIN EN 13659.

The CE marking must be affixed visibly, legibly and indelibly to the interior of the roller shutter box and the following information needs to accompany the CE marking:

- ✓ CE marking,m containing the „CE“-symbol
- ✓ name and address of the manufacturer
- ✓ last two digits of the year, in which the marking has been effected the first time
- ✓ reference number of performance declaration
- ✓ number of concerned European norm
- ✓ clear defined code of the product type
- ✓ application type of the product
- ✓ class of the indicated performance

Roller shutter elements manufactured by Alulux additionally include:

- ✓ Year and month of manufacture
- ✓ Order no./Order item

We always go one step further to ensure top quality. **Look out for the CE marking.**

Operating force
How much force is needed to operate the roller shutter? The table displays the amount of force required to operate our front-mounted roller shutter elements. Elements are manufactured to comply with the maximum operating forces specified in Class 1.

Maximum operating force values in Class 1		
Crank	Belt	Cord
30 N	90 N	60 N
Approx. 3 kg	Approx. 9 kg	Approx. 6 kg

Mechanical life of roller shutters to DIN EN 14201
Your customers have every right to expect a product with a long lifespan. All Alulux products are manufactured and tested to the highest national and international standards. Whichever one a customer chooses to buy, you can have the peace of mind that comes from selling a high quality product.

	Cycles (open/close)
Class 1	**3,000**
Class 2	**7,000**
Class 3	**10,000**

Definition of the wind resistance classes

Wind resistance class	0	1	2	3	4	5	6
Nominal test pressure p (N/m²) Wind speed (km/h)	< 50 < approx. 31	50 approx. 31	70 approx. 39	100 approx. 43	170 approx. 58	270 approx. 77	400 approx. 95
Safety test pressure 1.5 p (N/m²) Wind speed (km/h)	< 75 < approx. 41	75 approx. 41	100 approx. 43	150 approx. 52	250 approx. 72	400 approx. 95	600 approx. 107

DIN EN 13659
Things to keep in mind when buying a roller shutter!

Needless to say, a good roller shutter must be sturdy enough to withstand the wind and weather! But what does this actually mean in practice? Until now wind load specifications have been inconsistent and too confusing for end customers. The European standard DIN EN 13659 finally puts an end to this: It specifies the quality system requirements for production and installation.

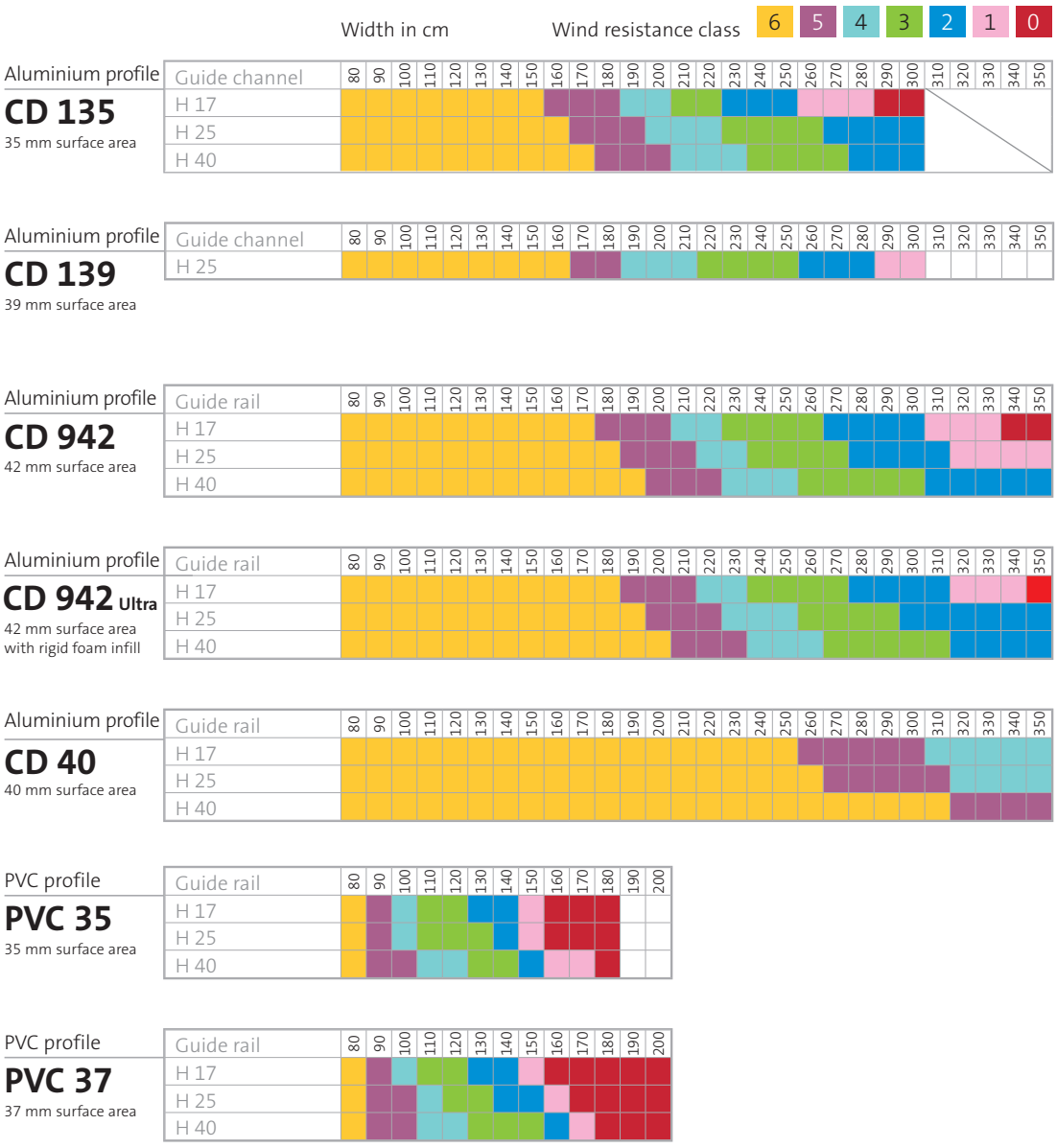
The CE marking indicates that a product conforms to relevant standards. Thus guaranteeing you a high-quality and safe product. All Alulux roller shutter elements are manufactured and tested to DIN EN 13659.

Wind resistance
(German example)
Depending on the actual level of exposure, various requirements must be met, even in terms of wind resistance. To this end, DIN EN 13659 specifies the wind resistance classes 0 to 6. This classification is based on varying regional wind load data, the installation height and the terrain category. The definition of the design (e.g. minimum resistance classes) is the responsibility of the specialist partner or specialist company on site, as only they know the local conditions.

Wind load zones
Germany is divided into four regional wind load zones (WLZ 1 to WLZ 4). This specification is underpinned by the criteria of the average wind speeds. The wind load zone map shown in DIN EN 1991-1-4/NA is relatively inaccurate. We recommend using the tables published by Deutsches Institut für Bautechnik (www.dibt.de) for classification according to administrative boundaries.

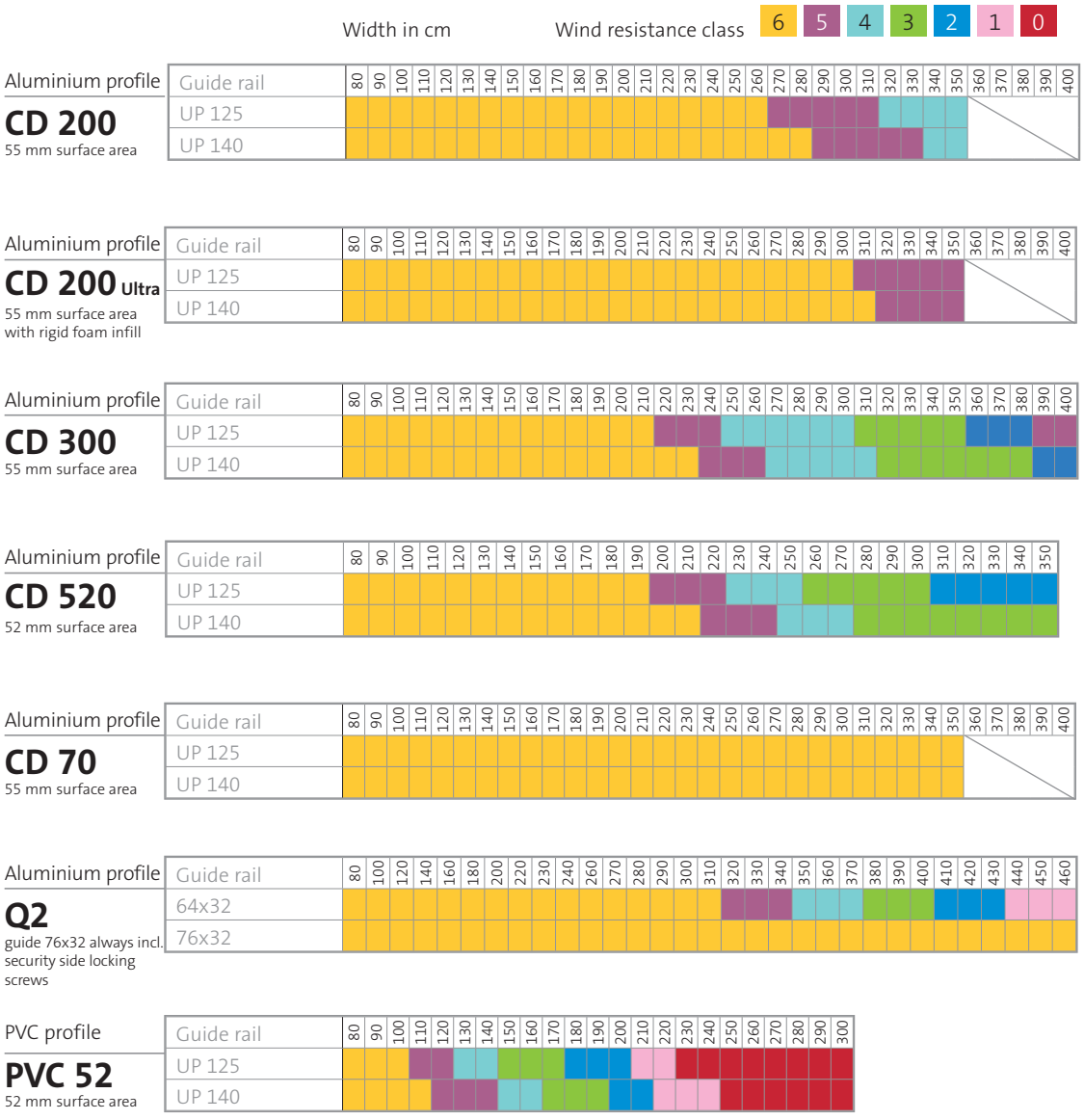
Table for classification according to administrative boundaries, see Table on next page.

Test results
wind resistance class mini sections[1]



[1] Mini sections = roller shutter sections with a surface area of between 35 mm and 40 mm.
Note: Plastic roller shutter sections regularly fail to meet the requirements of the standard wind resistance class to DIN EN 13659:2009. Achieve success by focussing on high-quality aluminium roller shutter sections.

Test results
wind resistance class standard sections[2]



[2] Standard sections = roller shutter sections with a surface area of between 51 mm and 55 mm. Note: Plastic roller shutter sections regularly fail to meet the requirements of the standard wind resistance class to DIN EN 13659. Achieve success by focussing on high-quality aluminium roller shutter sections.

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