



VEKA Window Systems – Technical Data

1. Material

Material Characteristics

High- impact modified U-PVC material for multichambered extrusion in accordance with DIN 7748 (79) Part I* and RAL-Standard RAL-G2 716/1*.

FM DIN 7748-PVC-U, EDL-082-35-28

U= unplasticised

E= Extrusion material

D= Powder

L= Colour fastness

(light and weather stability)

082= Vicat softening point VST/ B/ 50 in accordance with DIN ISO 306, minimum of 71°C

35= Impact strength according to DIN 53453, minimum of 2000 N/ mm²

Appearance and Finish

The profile surface must have an even colour of white and should be free from foreign bodies. The profile surface shall also be free from cracks, sink marks and die lines. Little uneven spots, which are due to not affect the functioning and the appearance of the profiles.

1.3 Profile Marking

All VEKA main profiles are marked and can be traced back to its origin and extrusion line.

1.4 Straightness

All profiles have to be straight. A deformation through inexpert stocking has to be avoided. The straightness of profiles along the longitudinal axis shall deviate from the straight line by no more than 1 mm/m.

1.5 Measures and Weights

The profile cross-section shall conform to the stated specification of the system supplier. Overall dimensions (front to back) shall be a minimum of 0,3 mm, general overall

dimensions shall be subject to tolerances of 0,5 mm.

Profiles' wall thickness shall comply to system suppliers' specification and in accordance with the RAL-Standard. Surface flatness of profiles shall not exceed 0,3 mm between the highest and the lowest point.

1.6 Low Temperature

When tested on a regular basis for low temperature impact resistance only 10% of the tested main profiles are allowed to break after drop ball (1kg) from 1500 mm height. Also there shall be no evidence of the profile cracking through the entire wall thickness. (DIN EN 477)

1.7 Heat Reversions

When tested on a regular basis for heat reversion the mean maximum of the main profiles should not exceed 2%, with no more than 0,4% variation between face sides. (DIN EN 479)

1.8 Heat Ageing

When tested on a regular basis for heat ageing, the profiles should not exhibit, cracks or delamination after they have cooled down to room temperature. (DIN EN 478)

1.9 Weld Factor

The welded and unwelded specimen shall be tested in a tensile heat in accordance with DIN ISO 53455. The short-time weld factor (F_2) shall not fall short of the figure 0,8.

1.10 Corner Strength

The welded corner samples shall be tested in accordance with DIN EN 514. The welded joint shall not fall below a stress level of (min) 35 N/mm².

1.11 Colour Fastness

All profiles shall be tested for colour fastness in accordance with DIN ISO 105-A03. After exposition to a radiation of 12 GJ/ m² the change of colour shall not exceed level 4 of the scale of grey of the above mentioned norm. No profile shall exhibit stains, bubbles, cracks or other damages that affect the appearance.



1.12 Weather Stability after Artificial Ageing

All profiles shall be tested for weather stability after artificial ageing in accordance with DIN EN 513. After exposition to a radiation of 12 GJ/ m² the arithmetical average of high impact resistance shall not fall short of the figure of 28 kJ/ m².

1.13 Chemical Resistance

All profiles have an excellent resistance against corrosion, contortion and disintegration. The profiles are also resistant against salty sea conditions.

1.14 Reinforcement

Each reinforcement section shall be designed to be installed so that it will be an acceptable fit in the reinforcement chamber. The VEKA Fabricators Manual or VEKA instructions shall be followed here. Reinforcement sections may be manufactured from the following: Mild steel sheet hot dip zinc FE-PO2-Z-275NA in accordance with DIN 59232. The reinforcement requirements of the system supplier shall be adhered to at all times and according to static calculation or VEKA manual. Any special requirements shall be discussed with the system supplier.

1.15 Gaskets and Weather Strips

All gaskets and weather strips shall comply to VEKA specification. In addition the glazing gasketing and weather stripping requirements of the system supplier shall be adhered to at all times. Any special requirements shall be discussed with the system supplier.

1.16 Fittings

All fittings shall comply to the relevant quality standards and/ or the VEKA recommendations. They shall be manufactured from corrosion resistant materials. For coastal locations, stainless steel gearing may be used.

1.17 Glazing

All glass shall be of the required thickness to meet wind load and safety requirements. All glazing shall comply to relevant local quality standards and/ or the VEKA Fabricators Manual and/ or VEKA instructions. Single glazing, double-glazing or glazing with special characteristics e.g. sound and thermal insulating can be used.

1.18 Ancillaries

Ancillaries like thresholds from Aluminium must be supplied from VEKA or comply to local standards and VEKA recommendation.

2. Design

2.1 Profile System

The main U-PVC profiles shall be multichambered, three chambers back to front and a minimum of 58 mm deep. The centre chamber being for reinforcement shall be fully sealed at welded joints. The profiles shall have a Softline design with sloping rebates and nicely rounded edges. The system incorporates frames, mullion, movable mullions, sashes and special profiles for certain window operation. Different profile series for various applications are included in the system.

Casement-, Awing-, Top hung-, Tilt and Turn-, French and Sliding windows can be manufactured as well as Residential and Sliding doors. Arched and triangle windows, louvers and combination of the above are in the product range.

Single and double glass, panels or special functional fillings can be installed. The glazing beads are located on the inside for security reasons.

A wide range of ancillaries supplied by VEKA as couplings, mullions stiffeners and soon can be used for e. g. static reasons.

3. Fabrication and Installation

3.1 Storage

The profiles are to be stored on racks or in stillages on a flat base with a maximum height of 1m. The room temperature and other conditions shall be suitable for processing of the materials.

3.2 Cutting

Cutting of profiles is done by using the appropriate saws and saw blades with the correct speed. The reduction factors for the various window stiles are given in the VEKA Fabricators Manual.



3.3 Reinforcement

All main profiles must always be reinforced. The reinforcement shall be secured by the use of the correct screws at the prescribed distances. The reinforcement requirements of the system supplier shall be adhered to at all times. Specific calculations for wind load are described in the VEKA manual and done before welding.

3.4 Drainage

All frames, transoms and sashes shall have an incorporated method of internal drainage system. No drainage slot shall enter or pass through the central reinforcement chamber. The position and size of the drainage slots shall be as per VEKA manual and done before welding.

3.5 Welding

All corner joints must be welded by automatic hot plate welding techniques to eliminate any risk of leaking. All welding shall be carried out under controlled conditions at accurate welding temperature according to the local conditions.

3.6 Corner Cleaning

The corner cleaning, removing of the welding head is done either by grooving the inner and outer surface of the profile and milling of the corner on a purpose made automatic machine, or manually using the appropriate tools to give a good corner finish.

3.7 Fabrication of Mullion

Mullion and transoms are either mechanically coupled using specially designed couples for the system of the supplier or applying the V-weld method.

3.8 Gasketing and Weatherstripping

Only glazing gaskets and weather stripping supplied or recommended by VEKA shall be used. The seals are retained in purpose-designed grooves. Locations and type is prescribed in the VEKA manual.

3.9 Fittings and Hardware

The profiles are designed to accept standard fittings and hardware available in the market for U-PVC profiles. Where required the screws of the fittings penetrate either two U-PVC-profile walls or they are secured into steel whatever is the better way. Profiles and fittings combined, allows a wide range of function as casement, awning, sliding, tilt und turn, pivot

besides many other. Additional security devices and fittings can be incorporated in certain types.

3.10 Glazing

The edge cover of the glazing rebate shall be 15mm and the edge clearance between rebate platform and glass edge has to be 6 mm. The setting blocks, 2 mm wider as the glass thickness and minimum 100 mm long are placed in the correct position. The glass is positioned in the profile rebate against the outer glazing gasket. After a functional check the setting blocks are secured from moving. The glass is hold in place by snap-in glazing beads cut to the correct length on the inside for security.

3.11 Ancillaries

Required ancillaries where necessary are mounted to the windows and doors.

3.12 Final Check and Handing

A final visual and functional test is done before the elements leave the factory. Windows and prefabricated units are transported and stocked in a vertical position and securely anchored to prevent movement. All windows shall be clearly identified. The windows must be protected against dirt on site to prevent damage.

3.13 Installation

The installation of window and doors shall comply to VEKA instruction, manuals and local standards and regulations. The windows must be fixed with system anchors or appropriate fixing plugs. The fixing must be at a distance of 250 mm apart from each corner and at max. 700 mm centres. Couplings, mullion stiffeners and other ancillaries are securely mounted. The surrounding gap, which allows for movement, tolerances and expansions has to be filled with e. g. expanding foam or rockwool for sound and thermal purposes. The inside and outside must be sealed with either a low modulus silicone bead or a sealing expansion tape relating to the local climate conditions.

3.14 Inspection

After cleaning of the frames a final inspection for function, finish and completeness is carried out.



4. Performance of windows

The windows shall comply to DIN 18055 or BS 6375: Part 1*.

4.1 Air Permeability

The air permeability shall be tested in accordance with BS 5368: Part 1, EN 42*. The value shall be as small as possible to avoid energy loss for e. g. air-conditioning, maximum 1m³/m/hr at an air pressure of 10 Pa. Typical value for VEKA tilt and turn windows, casements is 0,1m³/m/hr.

4.2 Watertightness

The watertightness is tested in accordance with BS 5368: Part 2, EN 86. There shall be no leakage at a certain wind pressure, amount of sprayed water and time. Typical classification for tilt and turn is group B and C, 300 and 600 Pa.

4.3 Wind Resistance

The wind resistance is tested in accordance with BS 5368: Part 3, EN 77. The maximum allowed deflection is 1/300 or 8mm between two edges of an insulating glass unit. Gust of wind is a repeated test (50 times) at +- 1000 Pa. For classification "C". There shall be no permanent residual deformation, damage or functional defects.

4.4 Thermal Insulation

The thermal insulation value is an important factor to save energy for heating and air-conditioning. The VEKA multichambered profiles have an U-value of 1,4–1,8 W/m².k.

Using single, double or specially treated glass units the U-values range between 6,0-1,0 W/m².k where the smaller value is the better one.

4.5 Sound Insulation

The double sealed window design (inside and outside weatherstripping) along with the reinforced multichambered profiles results in excellent sound insulation. Depending on the chosen glass unit the reduction is Rw 30 dB – 42 dB for e. g. noisy city centres.

4.6 Fire Classification

U-PVC is classified as self-extinguishing. The VEKA material has been tested to BS 476: Part 7. It has a class one surface spread of flame. VEKA windows have been used for many years in high rise buildings in many countries in the world e.g. Jinan/ China, Abu Dhabi/ UAE, besides Europe.

Note

Actual performance achieved will depend on window style, design and size as well as profile combination used. For any special specification please contact your local VEKA window supplier or VEKA AG in Germany



Warranty

For white uPVC window profiles manufactured by us using the tropical mix compound, we guarantee within the scope of the following conditions for a period of

10 YEARS

- calculated from our date of delivery - the following qualities:

- a) the equal physical characteristics of the profile shape in its measures within the allowed building tolerance limits,
- b) the weather resistance according to RAL – GZ 716/1.

This quality guarantee requires the unconditional compliance with our manufacturing guidelines, in particular the observance to the maximum size of windows proportionally to the necessary reinforcement.

This warranty shall be valid in the United Arab Emirates and neighbouring countries.

Defects of profiles - except minor blemishes in appearance - which are covered by this warranty certificate will be removed by us with due measures at our costs. Alternatively we are allowed to deliver substituted profiles of the same quality free of charge. Further claims regarding the replacement of damaged products which have not been delivered by us shall be excluded.

A claim of warranty will only be acknowledged if a written notification of defect has been given to us without any delay - at the latest 4 weeks after its appearance. Furthermore, we must have been given the opportunity of a local inspection of the products concerned before such products will be dismantled. Otherwise we are entitled to reject this complaint.

A replacement shall not result a prolongation of this warranty.

VEKA AG

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