



## Handrails

The handrails are composed of pultruded elements that are produced to EN 13706 and are available in isoptaltic polyester and vinylster resin (grey/ beige). Our handrail complies with the ARAB, BS5395 and EN 14 122.

**The posts** of the handrails are made of a square box 60x60x4.5 mm or 51x51x6.35 mm.

**The knee rails** are made of a round 38x32 mm tube. Depending on the client's specification, several knee rails can be provided.

**Kick plate:** the handrails can be fitted with a kick plate. This profile is 150 mm high and has been specially designed for this application by using a profiled W shape with a thickness of 3 mm.

**The handrail** is constructed using an ergonomically shaped U profile that is rounded on the upper side. The rounded shape feels comfortable to the hand and ensures that tool cases, for example, cannot be left on it.

**Fixation:** the posts are fixed to the ground by means of stainless steel supports or fiberglass reinforced stanchion feet. The connecting bolts and all accessories are made of stainless steel.



### Conformity EN 14122-3

Our fiberglass reinforced plastic handrails have been tested to the applicable EN 14122-3 standard. The certificat is available on request.

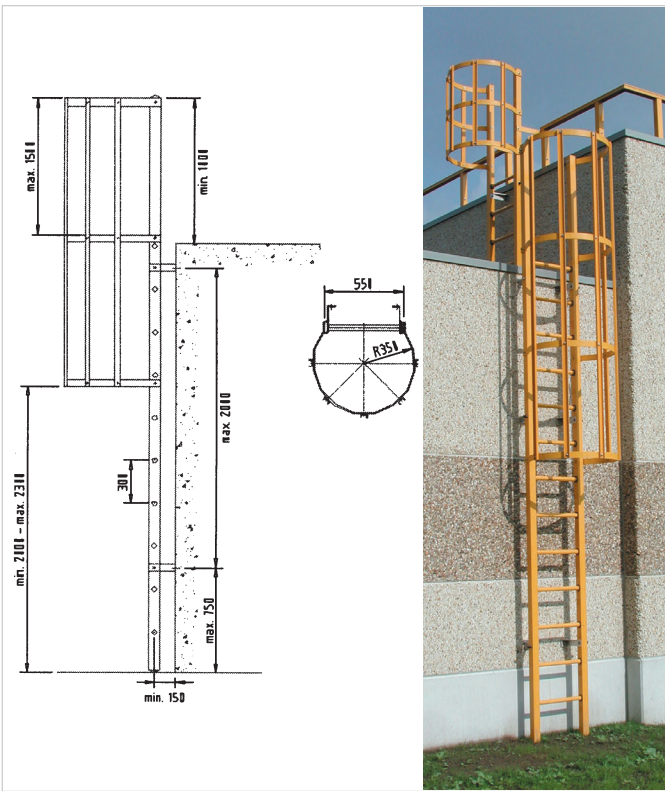


## Ladders

Our standard ladders are available as simple ladders, folding ladders or extending ladders (available with cord). Simple ladders have a width of 360 mm and a rung spacing of 250 mm. These ladders are made with rectangular uprights (70 x 25 mm) and have round rungs with an anti-slip surface (diameter 32 mm). In addition, we can offer you custom-made ladders. These ladders are designed for permanent mounting, for example, against a wall. They can also be fitted with a safety cage (diameter 750 mm). Ladders with a safety cage have a width of 480 mm. We can also offer you different types of safety step-ins.\* Spacers for fixing the ladder can be provided in fiberglass reinforced plastic or 316 stainless steel. The distance between the axis of the rungs and the wall is 165 mm. All ladders fully comply with EN 131 requirements. We can also provide you with copies of our safety certificates on request.

### \* Safety step-ins

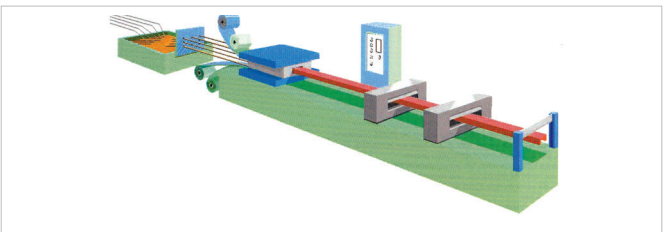
- ♦ extending ladder section with automatic locking (for ladder widths of 420 mm only)
- ♦ fixed step-in with continuous uprights (480 mm width only)
- ♦ extending upright for assembly on ladder or wall



## Profiles

### The production proces

Fiberglass reinforced polyester profiles are produced by pultrusion. Pultrusion is a continuous process during which a thermosetting polymer and reinforcement fibers are moulded into a profile. Reinforcement materials such as fiber glass rovings and mats are drawn through a liquid resin bath where they are impregnated with the resin. The impregnated material is then formed to the desired shape and pulled through a heated die. It is in this die that polymerisation or curing occurs. The product is then passed through the die by the puller gripper mechanism and cut by a saw to the required length.



### E23 European standard

Recommended references when using pultruded profiles in structural applications:

- ♦ EN 13706 : European standard for pultrusion
- ♦ EN 14122 : European standard for access structures
- ♦ DIN 18820 : reduction factors for long-term loads in chemical environments
- ♦ Eurocomp design guide

Properties	Unit	E23	E17
3-point bending modulus	GPa	23	17
Tension modulus - axial	GPa	23	17
Tension modulus - transversal	GPa	7	
5			
Tension strength - axial	MPa	240	170
Tension strength - transversal	MPa	50	30
Pin-bearing strength - axial	MPa	150	90
Pin-bearing strength - transversal	MPa	70	50
Flexural strength - axial	MPa	240	170
Flexural strength - transversal	MPa	100	

Supply program : visit [www.vink.no](http://www.vink.no)

## Vink Security Gate

The Vink Security Gate was developed to prevent falling in ladder and staircase openings. It consists of a self-closing gate made entirely of polyurethane. It does not work with springs, slide bearings or an electrical motor. The gate is designed such that when opened, it is pushed slightly upwards so that when it is closed it returns back to its original position under the force of its own weight.

### Advantages

- ♦ The Vink Security Gate is made from plastic (solid PU) that is weather and corrosion-resistant
- ♦ Colour = YELLOW = excellent visibility
- ♦ Mechanically strong, tested to EN 14122 = reliable for the user
- ♦ Always self-closing through own weight = security for your staff
- ♦ Simple installation: only 4 holes to drill
- ♦ 5-year operational guarantee

### Weight and dimensions

The Vink Security Gate is available in 2 swing directions and 4 standard lengths. The gate can easily be shortened on site. Always make sure that the arm is long enough to come into contact with the adjoining handrail (min. 30 mm). Available in lengths of 550, 680, 810 and 940 mm.

## Fiberglass reinforced constructions

In addition to handrails and ladders, we can also offer you structures in fiberglass reinforced plastics. Our product range includes supports for walkways, pedestrian bridges, staircases, cooling towers, suspended staircases, etc.

For the design of such structures, our engineers will present you with a proposal that is designed to meet EN 14 122 and EN 13 706 standards and/or your own requirements.





## Fiberglass reinforced plastics

Fiberglass reinforced plastics are composite materials made from fibers and resin. The fibers, mostly glass, give the material its strength, while the resin provides chemical resistance. Different resins can be used depending on the application. In this folder, you will find information on our range of fiberglass reinforced plastics. You will discover the Vink range of self supporting gratings, pultruded profiles and custom-made constructions.

### Transformation

#### Sawing

For small quantities, a traditional iron saw or a metal cutting disc can be used. For larger quantities, the use of segmented diamond-tipped sawing blades is recommended. Grinding fiberglass reinforced plastics should be avoided as much as possible.

#### Drilling

For small quantities, a traditional HSS drill can be used. For larger quantities, we advise the use of hardened metal or diamond-tipped drills.

#### Milling

When milling cutouts, slotted holes, etc. it is best to use hardened metal or diamond grinders. The actual milling is best done with light pressure and at high speed.

#### Remark

When working with large quantities of composite, we advise you to use water to reduce the dust or to work with effective dust-removal equipment. In order to obtain excellent resistance from the product against chemicals and in corrosive environments, we strongly advise you to treat the cut parts with resin. This will ensure that the material remains impervious to aggressive chemicals.

### Properties

The combination of fiberglass and resins results in a construction material with outstanding properties:

#### Excellent corrosion and chemical resistance

All metals, including the rust-resistant types, are susceptible to corrosion. Composites do not rust, not even under extreme chemical conditions. As a result, maintenance costs are kept to a minimum.

#### Light weight

Composites are light weighted. In construction applications, lower weight can help significantly reduce transport and installation costs.

#### Excellent mechanical properties

The strength of composites is comparable to that of steel and aluminium.

#### Low thermal expansion

Composites are outstanding thermal insulators. They are comparable to wood and other plastics and heat transmission remains minimal. However, in contrast to wood and thermoplastics, composites have outstanding dimensional stability. They do not warp or expand, even with extreme changes in temperature.

#### Transparent to radar and electromagnetic waves

Composites are suitable for building fences in the vicinity of airfields and structures around radar installations.

#### Elektrically insulating

Composites are very good electrical insulators. This makes them the best choice for ladders and tool sets in electrical applications.

#### resistant to theft

Composites are less attractive to thieves than iron, copper, aluminium and other metals.

#### Recyclable

Composites are grinded and added to cement or they can be transformed into well coverings.

## Gratings

### Vikugrate gratings

Vikugrate gratings consist of glass fibers that are put in a mould and to which resin is added in order to create a grating with square meshes. These gratings contain 35% glass and 65% resin. They are available with 4 standard types of resin.

### Types of resins

type of resin	resin	description	colours	fire behaviour
TYPE O	ortophtalic polyester	general applications with resistance to atmospheric corrosion	grey	on request
TYPE I	isophtalic polyester M1	high chemical resistance, suitable for food contact	green	good fire resistance with low smoke production
TYPE V	vinylester resin M1	outstanding chemical resistance to all acids, bases and corrosive products	red - grey	good fire resistance with low smoke production
TYPE F	phenolic resin	good chemical resistance	brown	extreme low smoke production and excellent fire resistance

Standard colours : yellow-green-red-blue-light grey-dark grey

### Surfaces

Vikugrate gratings are available with different types of surface finish:

#### Gritted

The incorporated grit (<1 mm) offers you the best solution for a continuous anti-skid surface in all directions. It is unique of its kind and guarantees you excellent anti-skid properties even in a humid environment, in case of ice and in the presence of grease. In this way, you are certain to benefit from optimal and permanent safety.

#### Concave

For certain applications where the anti-skid surface is less critical (e.g. in low-traffic areas), we offer you gratings with a concave surface.

#### Closed – sandwich panel

Gratings can also be covered' by adding a solid fiberglass panel (3 or 5 mm thickness) on one or both sides to create a sandwich panel. These gratings are also supplied as standard with a gritted anti-skid surface.

### Panel dimensions

Mesh mm x mm	Thickness mm	Weight kg/m <sup>2</sup>	Opening %	Panel size
STOCK DIMENSIONS				
38 x 38	25	12,1	68	3660 x 1220
38 x 38	25	12,1	68	2006 x 1000
38 x 38	30	13,8	68	2440 x 1220
38 x 38	30	13,8	68	3660 x 1220
40 x 40	30	13,8	68	3000 x 1000
13 x 13	30	13,8	42	3006 x 1006
40 x 40	38	13,8	68	3000 x 1000
25,4 x 152,4	38	13,8	68	3660 x 1220
38 x 38	38	13,8	68	2447 x 1220
39 x 38	39	18,2	68	3660 x 1220
OBTAIN DIMENSIONS				
38 x 38	13	5,6	70,5	3660 x 1220
50 x 50	13	5,6	70,5	3660 x 1220
38 x 38	25	12,1	68	2447 x 1220
38 x 38	25	12,1	68	3050 x 1525
38 x 38	25	12,1	68	3050 x 920
40 x 40	25	12,1	68	3000 x 1000
40 x 40	25	12,1	68	4048 x 1000
38 x 38	30	13,8	68	2447 x 1220
38 x 38	30	13,8	68	3050 x 1525
38 x 38	30	13,8	68	4048 x 1000
38 x 38	30	13,8	68	3050 x 920
40 x 40	30	13,8	68	4048 x 1000
38 x 38	38	18,2	68	3050 x 1525
38 x 38	38	18,2	68	3050 x 920
40 x 40	38	18,2	68	4048 x 1000
13 x 13	25	15	34	3660 x 1220
13 x 13	30	18	42	3000 x 1000
13 x 13	38	20,4	34	3660 x 1220
50 x 50	50	20,7	71	3660 x 1220



### Load data Vikugrate

Span (mm)	Mesh	38x38 25	38x38 30	38x38 38	13x13 30	50x50 50
1% deflection						
	point load (kg)	500	710	888	2022	1148
		600	479	596	1531	791
		700	385	508	1170	569
		800	272	410	958	497
		900	248	337	766	423
		1000	188	296	705	389
	evenly distributed load (kg/m <sup>2</sup> )	500	2565	3476	7518	4424
		600	1484	2012	4351	2560
		700	935	1267	2740	1612
		800	626	849	1836	1080
		900	440	596	1289	759
		1000	321	435	940	553
1% deflection						
		1100	241	326	706	415
		1200	168	251	544	320

For detailed list : visit [www.vink.no](http://www.vink.no)

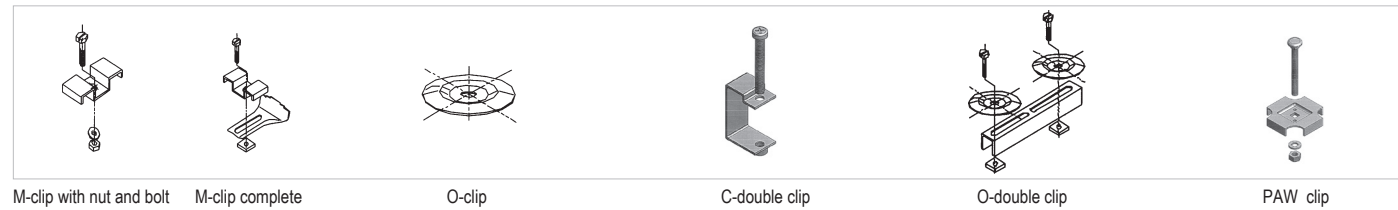
### Resin repair kit(coating set)



We can supply gratings cut to size. However, if you wish to do this yourself, it is recommended to coat the cut surfaces with resin so as not to reduce the chemical resistance of the grating (the glass fibers are not chemically resistant). For this purpose, we can provide a kit containing resin and a hardening agent.

### Fixation devices

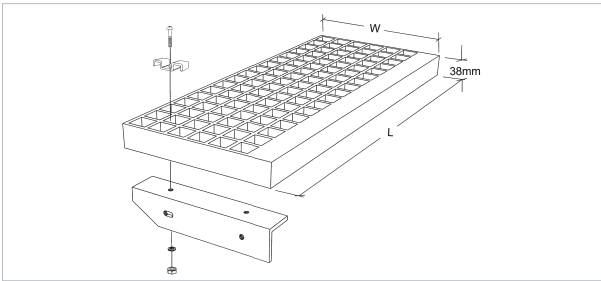
We can offer you a wide range of 316 stainless steel fastening clips for securing the gratings and stair treads.



## Stair grids

### Vikugrate stair grids

There are 2 types of stair tread panels. Firstly, the square mesh panel: 38 x 38 mm with a height of 38 mm. This panel has a standard size of 3660 x 267 mm, from which treads of different widths can be cut. Secondly, the rectangular mesh panel: 152 x 25 mm with a height of 38 mm. This panel has a size of 3050 x 565 mm. Both gratings have a reinforced (optionally coloured) front edge for stepping on. They all come standard with a gritted anti-skid surface. To support such treads, we can offer brackets made from the same material or in stainless steel.



### Vikustep stair grids and anti skid panels

Vikustep is the ideal solution for making your industrial step treads even safer. They can be installed on existing treads (in concrete, wood, steel, etc.) by means of stainless steel fastening clips or simply glued. The special silica grains give the Vikustep an outstanding anti-skid layer, even under the most extreme conditions (oil, water, ice, etc.). The Vikustep is supplied with a yellow edge.

#### Standard sizes

##### Stair grids

3660 x 345 mm

##### Vikustep anti skid panels

4048 x 1000 mm

3000 x 1000 mm

3660 x 1220 mm

Available in thicknesses of 3 or 6 mm