



Datasheet

liniLED® Handrail 48.3

V0519



liniLED®

Handrail 48.3

Product information	4
Technical specifications	4
Product specifications	4
Required tools and products	4
Dimensions	4
Clear, Frosted or Diffuse Covers	5
Standard and Customised angles	5
Wall and Post Mounting	5
Product specifications Top LED strip	6
Product specifications Side LED strip	7
Material	8
Power Supply	9
Parts of the liniLED® Handrail	10
Symbols	11



reddot award 2015
winner

Product information

The liniLED® Handrail is a revolutionary LED based handrail system that provides continuous functional lighting for a safe indoor and outdoor environment. The liniLED® Handrail can be wall mounted or post mounted. By integrating the liniLED® Top LED strips (24 V DC) in the stainless steel liniLED® Handrail, the product is ideal for high- end indoor and outdoor projects in various sectors, such as: architecture, infrastructure, construction, health and entertainment industry. The liniLED® Handrail has the same light benefits as a LED fixture: energy efficient with an expected lifetime of more than 50.000 hours.

Technical specifications

Dimensions handrail:	Ø48.3 mm
Material handrail & baluster:	AISI 316L
Material brackets:	AISI 316
Material Profile in the handrail:	Aluminium 6060-T6
Power Supply:	24 V DC
Water resistance LED strip:	IP40 ('Normal' indoor situation) IP65 (Outdoor situation or non corrosion resistant environment)
Accessories:	Several accessories (See page 10)

	IP40	IP65
liniLED® Top LED strip Mono	X	X
liniLED® Top LED strip TW & RGB	X	
liniLED® Side LED strip Mono	X	
liniLED® Side LED strip TW & RGB	X	

Product specifications

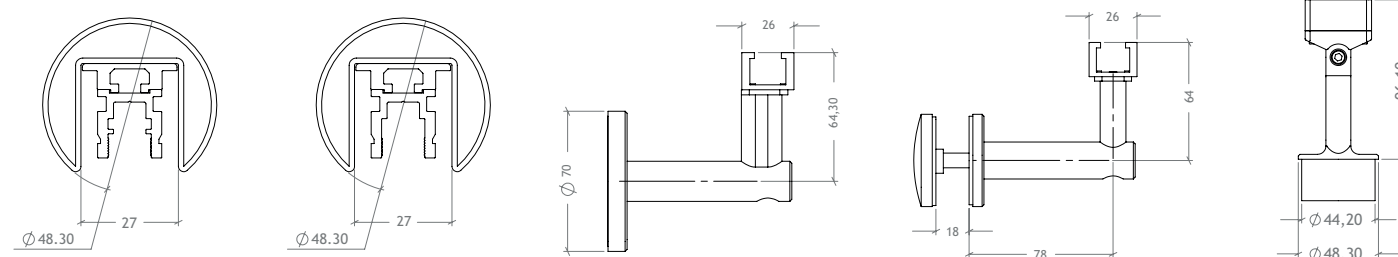
The maximum unit length of the handrail is 6 metres and can easily be connected mechanically or by welding. All handrails can be applied indoor and outdoor. However, the round 48.3 mm handrail is recommended for outdoor projects and can be used with the liniLED® Side LED strip.

Required tools and products

Depending on the project, standard tools and metal working tools should be present at the location. Make sure the following tools and products are present:

- Metal saw
- Grinding tool
- Metric Allen key 3, 4 and 5
- Torx 20 screwdriver
- Screwdriver nr. 2 and nr. 3
- Stripping tool
- Anaerobic adhesive suitable for stainless steel
- Degreaser
- Welding equipment (When performing welding on site)
- liniLED® Roller
- liniLED® Pliers

Dimensions

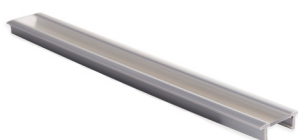


12100

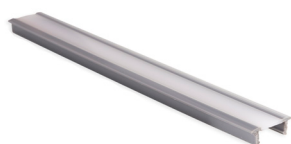
12134

Clear, frosted or Diffuse covers

The liniLED® Handrail comes with a cover. Depending on the desired light effect, you can choose between a clear or frosted cover. When using the clear cover, the light dots of the liniLED® LED strip are visible. In case a more 'diffuse' light effect is desired, the frosted cover is the right choice. By using the frosted cover, the light dots of the LED strip are 'blurred'. The higher the luminous intensity of the strip, the more 'diffuse' the light effect will be. For a complete diffuse effect the frosted cover is used in combination with an altered LED mounting profile. Regardless of which cover you choose: the liniLED® LED strips in the handrail are secured.



Clear covers 48.3 mm



Frosted covers 48.3 mm

Standard & customised angles

There are three standard angles for the liniLED® Handrails: 45°, 90° and 120°. Other angles can be customised upon request.



Customised Angles



45° Angle



90° Angle



120° Angle

Wall & Post Mounting

The maximum unit length of the handrail is 6 metres and can easily be connected mechanically or by welding. All handrails can be applied indoor and outdoor. However, the round 48.3 mm handrail is recommended for outdoor projects.

As well as the wall bracket, the position of the adapter can easily be adjusted to ensure a continuous light line. The liniLED® Handrail can be delivered with several infill options, such as: glass, cables and railings. It is possible to prefabricate the posts. For example: If glass infill is desired, the posts can be customised with glass clamps. Ask us about the customised options.



Post Mounting



Wall Mounting



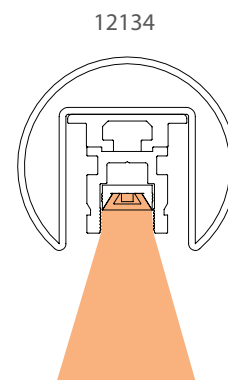
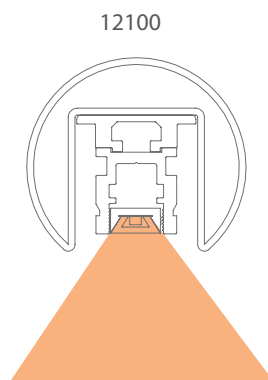
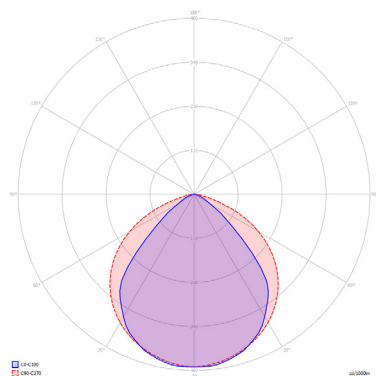
Glass infill option



Glass Wall/ Panel Mounting

Product specifications Top LED strips

The high-quality, flexible liniLED® Top LED strips are fully integrated into the stainless steel handrail. With a unique co-extrusion technology, all the liniLED® Top LED strips realise an optimal light output (24 V DC). The LED strips are available several colours.



liniLED® Top Deco LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	1.1	90	20 m
2700K	24	1.1	106	20 m
3000K	24	3.3	102	20 m
4000K	24	1.1	113	20 m
6500K	24	2.2	113	20 m
Red	24	4.4	55	20 m
Green	24	2.5	106	20 m
Blue	24	1.7	23	20 m
Amber	24	4.4	47	20 m

liniLED® Top Power LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	4.5	381	10 m
2700K	24	4.6	415	10 m
3000K	24	4.3	381	10 m
4000K	24	4.1	411	10 m
6500K	24	4.1	426	10 m
Red	24	8.3	102	10 m
Green	24	4.9	153	10 m
Blue	24	7.2	68	10 m
Amber	24	8.3	94	10 m

liniLED® Top High Power LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	8.9	623	10 m
2700K	24	8.9	703	10 m
3000K	24	8.3	617	10 m
4000K	24	8.6	711	10 m
6500K	24	8.6	693	10 m

liniLED® Top Photon 1200 LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2000K	24	10.6	811	9 m
2400K	24	10.6	958	9 m
2700K	24	8.9	997	9 m
3000K	24	8.9	1023	9 m
4000K	24	8.1	1008	9 m
6500K	24	8.1	1003	9 m

liniLED® Top Tunable White LED 1200 strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2700K/ 6500K	24	10.5	838	9 m

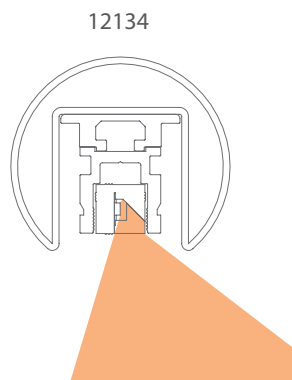
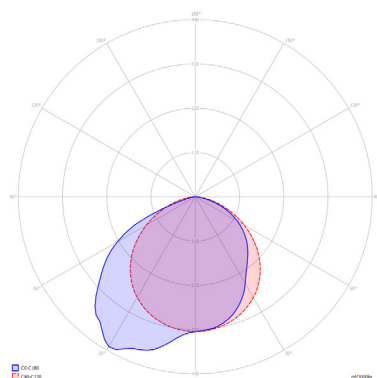
liniLED® Top RGB 160/240 LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
RGB 160	24	4.8	139	10 m
RGB 240	24	7.2	209	5 m

Product specifications Side LED strips

The high-quality, flexible liniLED® Side LED strips are fully integrated into the stainless steel handrail. With a unique co-extrusion technology, all the liniLED® Side LED strips realise an optimal light output (24 V DC). The LED strips are available several colours.

liniLED® Side LED strips can only be used in 48.3 Handrails.



liniLED® Side Deco LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	1.1	81	20 m
2700K	24	1.1	84	20 m
3000K	24	3.3	91	20 m
4000K	24	1.1	92	20 m
6500K	24	2.2	93	20 m
Red	24	4.4	46	20 m
Green	24	2.5	88	20 m
Blue	24	1.7	19	20 m
Amber	24	4.4	39	20 m

liniLED® Side Power LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	4.5	316	10 m
2700K	24	4.6	320	10 m
3000K	24	4.3	290	10 m
4000K	24	4.1	324	10 m
6500K	24	4.1	298	10 m
Red	24	8.3	84	10 m
Green	24	4.9	126	10 m
Blue	24	7.2	56	10 m
Amber	24	8.3	77	10 m

liniLED® Side High Power LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	8.9	499	10 m
2700K	24	8.9	546	10 m
3000K	24	8.3	505	10 m
4000K	24	8.6	557	10 m
6500K	24	8.6	559	10 m

liniLED® Side Photon 1200 LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2000K	24	10.6	697	9 m
2400K	24	10.6	799	9 m
2700K	24	8.9	827	9 m
3000K	24	8.9	836	9 m
4000K	24	8.1	831	9 m
6500K	24	8.1	830	9 m

liniLED® Side Tunable White 1200 LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2700K/ 6500K	24	10.5	838	9 m

liniLED® Side RGB 160/240 LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
RGB 160	24	4.8	97	10 m
RGB 240	24	7.2	168	5 m

Material

AISI 316 L tube

Chemical composition										Mechanical Test		
Item No.	Polish	C	Si	Mn	P	S	Cr	Ni	Mo	T.S.	Y.S.	Elongation
		%	%	%	%	%	%	%	%	MPa	MPa	%
		≤ 0.080	≤ 0.75	≤ 2.000	≤ 0.040	≤ 0.030	16.0 - 18.0	10.0 - 14.0	2.0 - 3.0			
2004976	#320 satin	0.023	0.33	1.11	0.003	0.004	16.10	10.15	2.08	616	330	57
2004981	#320 satin	0.028	0.20	1.05	0.010	0.002	16.05	10.10	2.12	618	326	55

AISI 316 Brackets

Chemical composition									
Item No.	C	Si	Mn	P	S	Cr	Ni	Mo	
	%	%	%	%	%	%	%	%	
	≤ 0.080	≤ 0.75	≤ 2.000	≤ 0.040	≤ 0.030	16.0 - 18.0	10.0 - 14.0	2.0 - 3.0	
40-1287.1	0.002	0.500	1.020	0.041	0.008	16.219	10.275	2.099	
40-1285.1	0.032	0.604	0.0833	0.042	0.008	17.473	10.413	2.315	
40-1288.1	0.008	0.462	1.003	0.036	0.005	16.706	10.350	2.184	
40-1260.0	0.022	0.607	0.994	0.037	0.007	16.959	10.584	2.327	
40-1284.1	0.002	0.624	1.209	0.039	0.008	17.190	11.159	2.422	
40-1283.1	0.023	0.682	0.947	0.038	0.007	17.237	10.272	2.265	
40-1286.1	0.022	0.550	1.025	0.032	0.004	17.231	10.327	2.229	

Aluminium Alloy 6036-T6

Chemical composition							Mechanical Test			
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	T.S.	Y.S.	Elongation
0.2- 0.6%	≤ 0.35%	≤ 0.10%	≤ 0.10%	0.45- 0.90%	≤ 0.10%%	≤ 0.10%%	≤ 0.10%%	min. 215	min. 170	min 8%

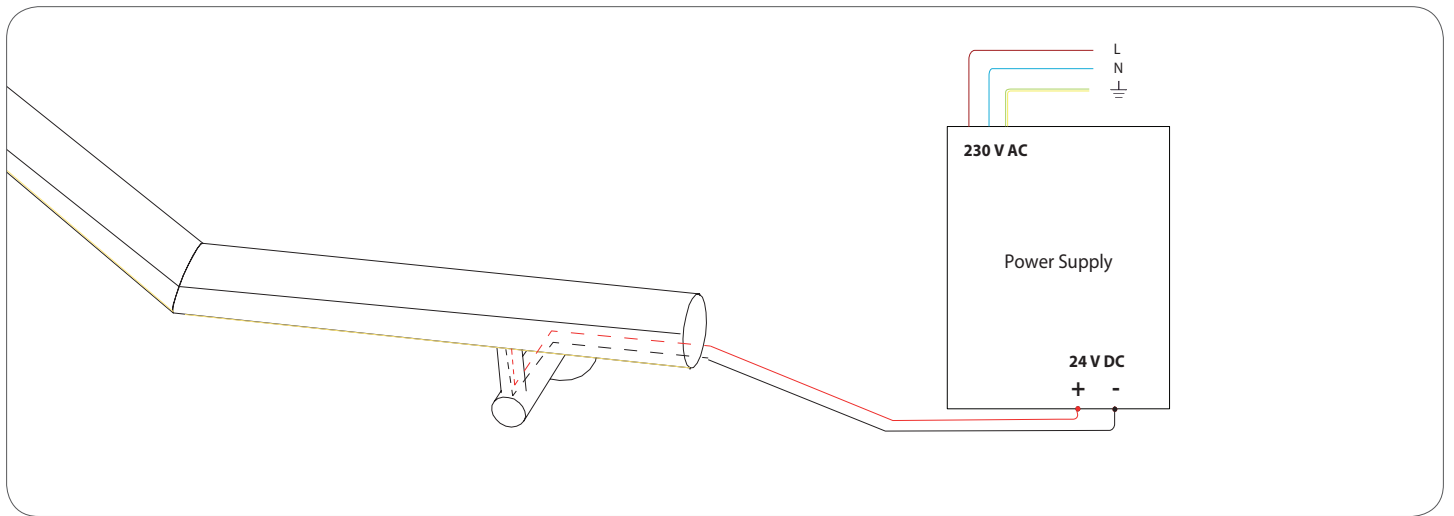



Danger! Danger electric shocks! Whenever this sign is shown, the user should be aware of dangerous situations, which can cause electric shocks. Follow the safety instructions to prevent physical injuries of life-threatening situations.



Warning! In some cases the user can injure himself or damage the product. The warning sign points out such damage, when the user does not follow the procedures.

Power Supply

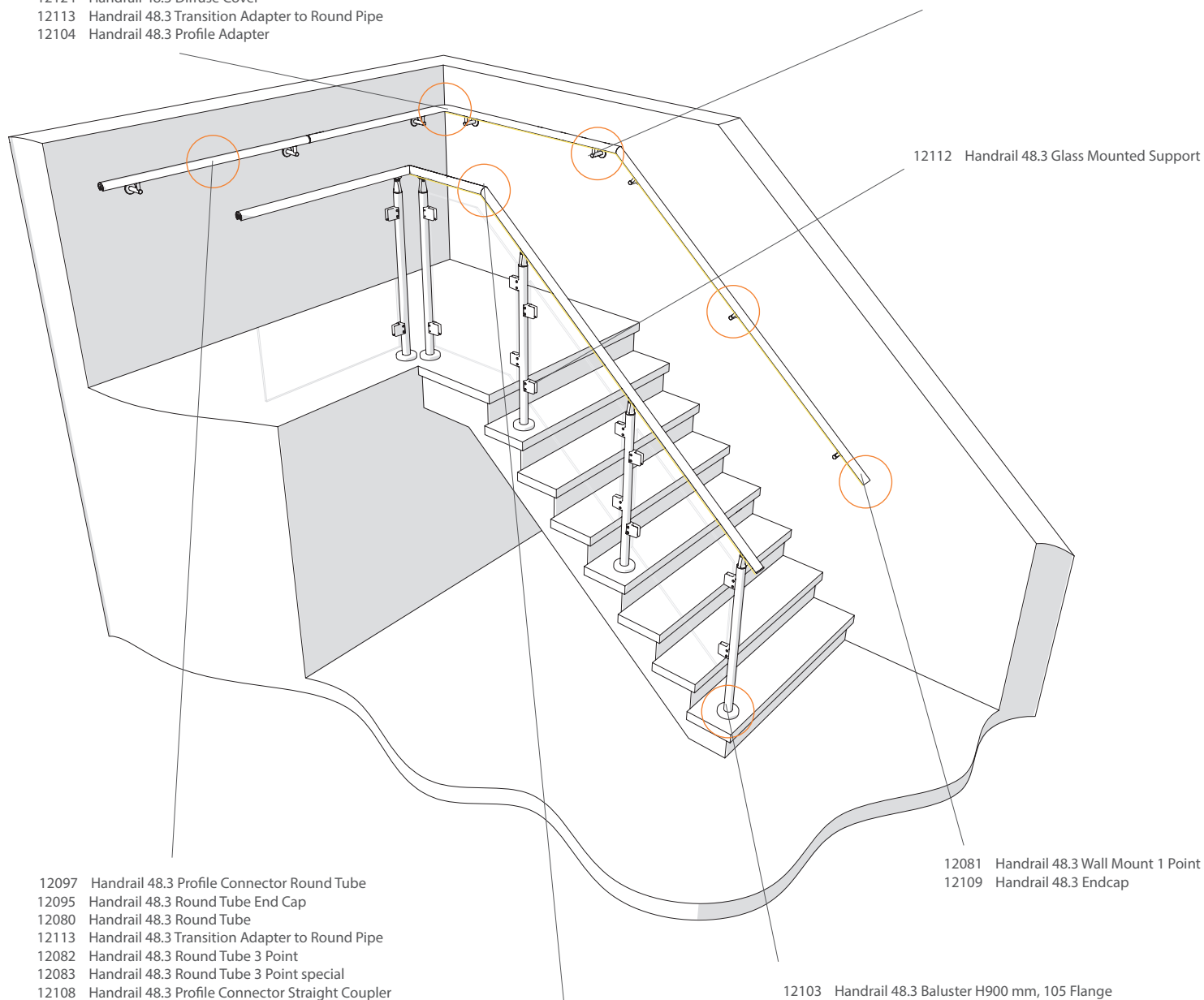


 **Warning!** The Power Supply and any Drivers are always connected externally. Always use a SELV Driver.

Parts of the liniLED® Handrail

- 12125 Handrail Connector IP40
- 12126 Handrail 48.3 Connector Set IP65
- 12130 Handrail 48.3 End Set IP65
- 12131 Handrail 48.3 Connector Set/ Endcap/ IP65 Kit
- 12100 Handrail 48.3 Mounted Profile
- 12116 Handrail 48.3 Aluminium Mounting Profile with screws
- 12114 Handrail 48.3 Aluminium Mounting Profile without screws
- 12117 Handrail 48.3 Aluminium Profile 1200 mm
- 12110 Handrail 48.3 Transparent Cover
- 12111 Handrail 48.3 Frosted Cover
- 12124 Handrail 48.3 Diffuse Cover
- 12113 Handrail 48.3 Transition Adapter to Round Pipe
- 12104 Handrail 48.3 Profile Adapter

- 12101 Handrail 48.3 Wall Support 1 Point
- 12102 Handrail 48.3 Hollow Wall Support
- 12084 Handrail 48.3 Wall Mounted Support 0- 45° Angle
- 12085 Handrail 48.3 Wall Mounted Support 0-45° Angle Right
- 12086 Handrail 48.3 Wall Mounted Support 0-45° Angle Left
- 12087 Handrail 48.3 Profile to Profile 0- 45° Angle
- 12088 Handrail 48.3 Profile to Profile 0- 45° Angle Left
- 12089 Handrail 48.3 Profile to Profile 0- 45° Angle Right



12112 Handrail 48.3 Glass Mounted Support

- 12097 Handrail 48.3 Profile Connector Round Tube
- 12095 Handrail 48.3 Round Tube End Cap
- 12080 Handrail 48.3 Round Tube
- 12113 Handrail 48.3 Transition Adapter to Round Pipe
- 12082 Handrail 48.3 Round Tube 3 Point
- 12083 Handrail 48.3 Round Tube 3 Point special
- 12108 Handrail 48.3 Profile Connector Straight Coupler

12081 Handrail 48.3 Wall Mount 1 Point
12109 Handrail 48.3 Endcap

- 12099 Handrail 48.3 Variable Angle Upward
- 12098 Handrail 48.3 Variable Angle Downward
- 12105 Handrail 48.3 Profile Angle 90° Horizontal
- 12106 Handrail 48.3 Profile Angle 90° Vertical
- 12107 Handrail 48.3 Profile Customized Angle

- 12103 Handrail 48.3 Baluster H900 mm, 105 Flange
- 12090 Handrail 48.3 Baluster H1000 mm, 105 Flange
- 12091 Handrail 48.3 Baluster H900 mm, 125 Flange
- 12093 Handrail 48.3 Baluster Post 900 mm with concrete anchor
- 12094 Handrail 48.3 Baluster Post 1000 mm with concrete anchor

Symbols



Manufacturer's declaration that the product meets the applicable EC directives.



Restriction of Hazardous Substances (RoHS): product complies with the RoHS directive and each homogeneous material does not exceed the limits for the materials mentioned under the RoHS directive (Pb, Hg, Cd, Cr6+, PBB and PBDE).



Protected against ingress of solid foreign objects ≥ 1.0 millimetres. Not-protected against ingress of water.



Dust-tight, no ingress of dust. Protected against water jets (Jet of 12.5 l/min at a distance of 2.5 metres from any direction).



Protected against impact energy of 20 joules.



Electrical appliance class III: this product is designed to be supplied from an extra-low voltage (≤ 60.0 V DC or ≤ 42.4 V AC).



Very high quality stainless steel type 316.



Very high quality low carbon stainless steel type 316.



Product is resistant against ultraviolet (UV) light or sunlight. Non-UV resistant products can degrade or discolour fast when exposed to UV light.



Product can be cleaned with normal cleaning agents as specified in the datasheet under 'chemical compliances'.



This product can be stored and used below 0 degrees Celsius. Verify the minimum storage and operation temperature in the datasheet or manual for the lowest temperature allowed.



This product needs to be disposed of separately from normal household waste so it can be recycled. Verify the IP rating for proper use.

Disclaimer

The published information is checked to be as accurate as possible, however Triolight B.V. or any reseller of liniLED® cannot be held liable for any damages resulting from misprints, errors, modifications or outdated information. No legal rights can be derived from this document. Triolight B.V. reserves the right to modify the information without informing the customers. Please check for the latest version on www.liniLED.com. This product should not be used in applications, devices or systems where incorrect operation of the product may result in personal injury (includes emergency lighting) without written permission from the board of Triolight B.V. If nevertheless used in such applications, devices or systems Triolight B.V. cannot be held liable for any resulting injury. liniLED® is a registered trademark of Triolight B.V.