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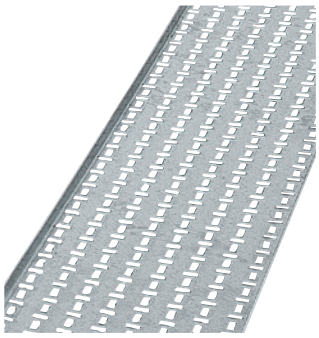
SSL Kabelbaan

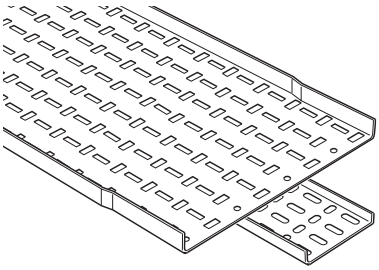
VAN GEEL

H12 & 18

50 - 300 mm

2 & 3 m

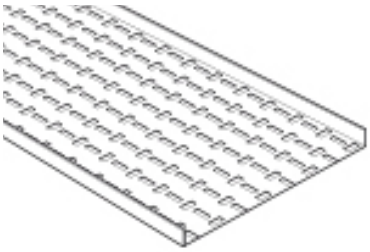




Ref.: SSL225PG

Hoogte 12 & 18

Breedte (mm)	Hoogte (mm)	Perforatie (mm)	Gewicht (Kg)	Ref. GS	Ref. GC	Ref. 316L
				Lengte 3 m	Lengte 3 m	Lengte 3 m
50	12	Geperforeerd	1,200	SSL50PG	SSL50G	SSL50S
75	12	Geperforeerd	1,700	SSL75PG	SSL75G	SSL75S
100	12	Geperforeerd	2,100	SSL100PG	SSL100G	SSL100S
150	12	Geperforeerd	3,000	SSL150PG	SSL150G	SSL150S
225	12	Geperforeerd	4,800	SSL225PG	SSL225G	SSL225S
300	18	Geperforeerd	9,000	SSL300PG	SSL300G	SSL300S



Ref.: SSL2252MPG

				Lengte 2 m	Lengte 2 m	Lengte 2 m
50	12	Geperforeerd	0,820	SSL502MPG	SSL502MG	SSL502MS
75	12	Geperforeerd	1,110	SSL752MPG	SSL752MG	SSL752MS
100	12	Geperforeerd	1,400	SSL1002MPG	SSL1002MG	SSL1002MS
150	12	Geperforeerd	1,980	SSL1502MPG	SSL1502MG	SSL1502MS
225	12	Geperforeerd	2,897	SSL2252MPG	SSL2252MG	SSL2252MS
300	18	Geperforeerd	6,090	SSL3002MPG	SSL3002MG	SSL3002MS

Opmerking: Lengte 2000 mm is zonder geïntegreerde koppeling. Koppelen met bodemplaat.

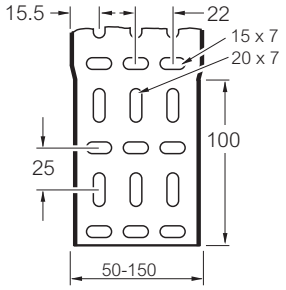
MATERIAALSOORTEN

- EZ — Elektrolytisch verzinkt Norm EN ISO 2081
- GS — Sendzimir verzinkt Norm EN 10346
- RAL ???? — Poedercoat (gelakt)
- GC — Thermisch verzinkt Norm EN ISO 1461
- DC — Geomet bescherming
- 304L — RVS 304 L (Inox) Norm EN 10088-2
- 316L — RVS 316 L (Inox) Norm EN 10088-2
- GEM. — Gemenied
- ALU — Aluminium

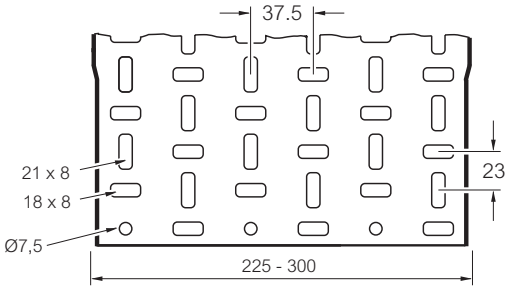
SSL KABELBAAN

Voor lichte toepassingen is de Van Geel SSL kabelbaan ontwikkeld. Met een hoogte van slechts 12 millimeter is de SSL kabelbaan met geïntegreerde koppeling uitermate geschikt als secundaire goot.

PERFORATIEPATROON



Breedte 50 t/m 150 mm

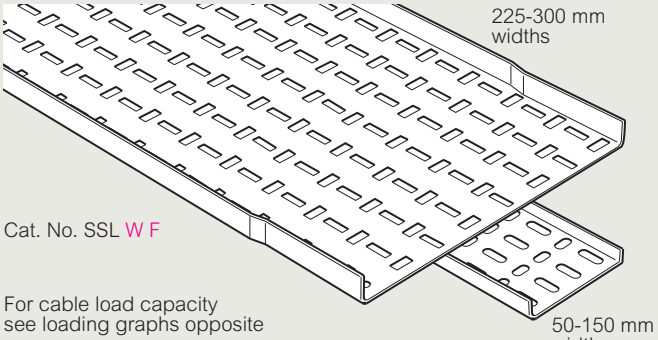


Breedte 225 en 300 mm

Swifts® SS light duty
straight lengths

12 or 18

■ Dimensions and weights



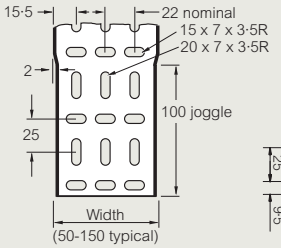
Cat. No. SSL W F

For cable load capacity see loading graphs opposite

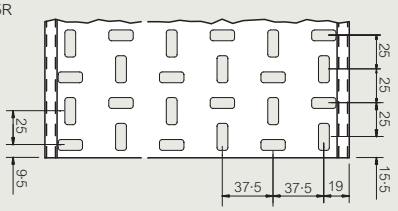
Dimensions

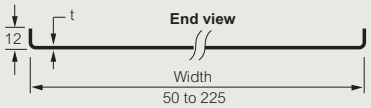
Standard length 3 m

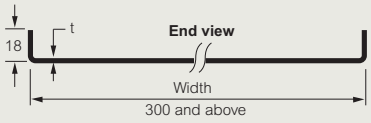
Plan view



Plan view







R = radius

Gauges and weights

The gauge 't' for each cable tray width and finish can vary by product and range

Non-standard gauges and finishes are available to special order, contact Legrand

Cat. Nos.	Width (mm)	Weight (kg)	Gauge t (mm)
SSL50G	50	1·4	0·9
SSL50PG	50	1·2	0·9
SSL50S	50	1·7	1·2
SSL75G	75	1·8	0·9
SSL75PG	75	1·7	0·9
SSL75S	75	2·2	1·2
SSL100G	100	2·3	0·9
SSL100PG	100	2·1	0·9
SSL100S	100	2·9	1·2
SSL150G	150	3·3	0·9
SSL150PG	150	2·8	0·9
SSL150S	150	4·1	1·2
SSL225G	225	5·2	0·9
SSL225PG	225	4·8	0·9
SSL225S	225	7·4	1·5
SSL300G	300	10·4	1·5
SSL300PG	300	9·0	1·4
SSL300S	300	10·0	1·5

All weights given are in kilograms (kg) and are for a 3m straight length in hot dip galvanised G finish

To obtain the appropriate component weight in other finishes, multiply the given weight by the following factors :

Stainless steel (S) x 0·94
Pre-galvanised (PG) x 0·96

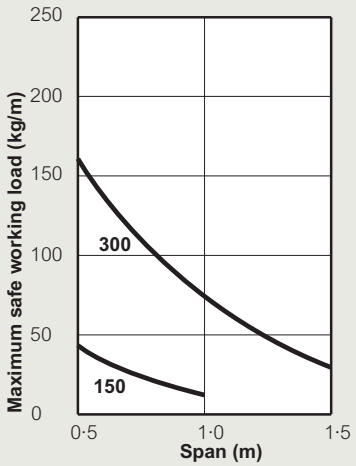
■ Loading graphs

Load tests carried out to BS EN 61537

The loads shown on all graphs are the safe recommended maximum loads that can be applied and must include wind, snow and any other external forces in addition to the cable load

The graphs show the maximum load for tray installed at a support spacing within its recommended range

When the graph line is above the intersection of the required load and span lines, the support equipment is suitable for use within those load and span conditions



For lengths 450 mm wide and greater, the addition of fishplate Cat. No. WF F across the underside of the length-to-length joint provides added strength and increases the safe working load, see p. 101

■ Finishes and standards

Standard stocked finish :

G Hot dip galvanised after manufacture to BS EN ISO 1461 : 2009
PG Pre-galvanised steel to BS EN 10346 : 2009 grade DX51D

Additional finishes :

S Stainless steel to BS EN 10088 – 2 grade 1·4404 (equivalent to 316L31)

Note

50 mm wide not available in deep galvanised (D) finish

Sheared steel (particularly stainless steel) does have relatively sharp edges and protective gloves must be worn during handling

All dimensions (mm) are nominal

Key : Replace the letter shown in red with your choice from the following options :

F = Finish : G (hot dip galvanised after manufacture), PG (pre-galvanised steel), S (stainless steel)

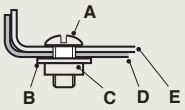
■ Coupling detail

All SS straight lengths have one end joggled to allow jointing without a separate coupler, see illustration
Slide joggled end of length 1 inside length 2 before fastening

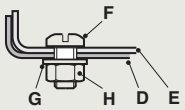
Note
Quantity of bed fasteners
50 - 225 mm = 4, 300 mm = 6

Fasteners (not included)

For G and PG finish



For S finish



A	M6 x 12 roofing bolt
B	Roofing washer
C	M6 square nut
D	Straight length
E	Straight length
F	M6 x 12 panhead screw
G	M6 form A washer
H	M6 hexagon nut

Fastener finishes
For flat bends with G and PG finishes, fasteners are galvanised or zinc plated. For flat bends with S finish, fasteners are stainless steel

Key : Replace the letter shown in red with your choice from the following options :
F = Finish : G (hot dip galvanised after manufacture), PG (pre-galvanised steel), S (stainless steel)

All dimensions (mm) are nominal

Finishes

IN THIS SECTION...

1 British standards

Legrand ensures that all of the materials used during the construction and finishing of their products conform to the relevant standards, a full list of which is provided on p. 142. In particular, the relevant standards for steel are :

Finish	Product	Current standard/grade
G	Tray less than 1·5mm thick	BS EN 10130 : 2006 Grade DC01
G	Tray 1·5mm and thicker	BS EN 10111 : 1998 Grade 1.0332 / BS EN 10025 : 2004 Grade S275JRC
G	Swiftrack channel	BS EN 10025 : 1993 Grade S235JRC (Ys = 250N/mm^2 min)
G	Swiftrack brackets	BS EN 10025 : 2004 Grade S275JRC
D	Tray	BS EN 10025-5 : 2004 Grade S355J0WP
PG	Tray	BS EN 10346 : 2009 Grade DX51D
PG	Swiftrack channel	BS EN 10346 : 2009 Grade S250GD + Z275
S	Tray and Swiftrack	BS EN 10088 : 2005 Grade 1.4404 (equivalent to S316L31)

Finishes :
G = hot dip galvanised after manufacture
D = deep galvanised
PG = pre-galvanised
S = stainless steel
E = powder coated

2 Hot dip galvanised (G)

Hot dip galvanising after manufacture is an excellent, economical protective finish used on support systems in many industrial and commercial applications.

Background

The galvanised coating is applied as a final manufacturing process by immersing a steel component (after various pre-treatments) in a large bath of molten zinc; the zinc forms an alloy with the steel substrate and protects the steel from corrosion in two ways.

Firstly, the zinc coating surrounds the base steel with a total, tough physical barrier preventing corrosion of the steel by the surrounding atmosphere. Secondly, if steel does become exposed, e.g. at a cut edge, the zinc coating acts as a sacrificial anode and will be gradually corroded in preference to the underlying steel. Corrosion products from the zinc will also be deposited onto the steel, effectively re-sealing the surface and maintaining the integrity of the barrier.

The life of a zinc coating is directly proportional to its thickness but in different environments this life does vary. However because hot dip galvanising has been used for many years its life in diverse environments has been well established. The most comprehensive guide to the design life of protective systems in different environments is contained in BS EN ISO 12944-5 : 2007 'Paints and varnishes' and BS EN ISO 14713 : 2009 'Parts 1 + 2 - zinc coatings'. In the presence of certain atmospheric pollutants (such as sulphur dioxide in industrial areas) or when installed in an aggressive coastal or marine environment the rate of dissipation of the zinc will be accelerated; however in most situations hot dip galvanising remains an extremely effective and economical corrosion resistant finish.

Specification

BS EN ISO 1461 provides the specification for a hot dip galvanised coating. Heavier gauges of steel will usually take up a thicker coating of zinc than lighter gauges so the standard defines the coating for different steel gauges in terms of the weight of zinc per square metre of surface area. Ensuring compliance with this standard is obviously important. Unfortunately it is not reasonable to use this weight principle for checking the coating weight on components which have already been galvanised as it involves calculating the surface area then weighing a component, destructively removing the coating by chemical means and then re-weighing the component. It is therefore usual to measure instead the coating thickness (which can be done non-destructively using magnetic or electronic instruments) at a number of points on the surface of a component. The coating thicknesses given in the standard and their equivalent coating weights are shown in table 1.

Table 1
Galvanising standard BS EN ISO 1461 : 2009
Minimum average zinc thickness

Steel thickness	Minimum average zinc thickness (microns)
Less than 1·5 mm	45
1·5 mm and thicker up to 3 mm	55
3 mm and thicker up to 6 mm	70
6 mm and thicker	85

Note

For threaded and very small components which are spun galvanised, thinner coatings are used as recommended by BS EN ISO 1461.

It is important to distinguish between 'hot dip galvanised after manufacture to BS EN ISO 1461' and less precise descriptions such as 'galvanised', 'mill galvanised' or even the term 'hot dip galvanised', when used without reference to any standard. Mill galvanised steel is frequently used as an alternative finish for many support system components (see 'pre-galvanised steel', page 122), and is available from Legrand, but this material does have a much thinner zinc coating which renders it unsuitable for exposed applications.

Suggested specification text : "All components should be hot dip galvanised after completed manufacture to the requirements of BS EN ISO 1461."

3 Deep galvanised (D)

A deep galvanised finish has all of the characteristics of hot dip galvanising but with a much thicker coating of zinc. This gives 2-3 times the life of the standard hot dip galvanised (BS EN ISO 1461) finish.

Background

The life of a galvanised coating depends very much upon the degree of pollution of the surrounding atmosphere; in an industrial or marine environment corrosion of the zinc may take place at double or treble the rate which would occur in an inland environment. Thus, if heavy atmospheric pollution or aggressive conditions exist in the vicinity of an installation, it is well worth considering the benefits provided by deep galvanising.

Since this finish is produced in the same basic process as normal hot dip galvanising the initial cost premium of the material is relatively low; however the site installation costs will remain unchanged. Therefore, for a relatively modest premium on the overall installed cost the life of the installation can be increased dramatically.

Specification

Although the appropriate British Standard for deep galvanising is BS EN ISO 1461 (the same as for hot dip galvanising after manufacture) the process requires the use of steel containing a slightly higher proportion of silicon; often referred to as high silicon steel. When galvanising normal mild steel the process effectively ceases after a short immersion time in the galvanising bath, giving, depending on the gauge of the steel, the coating thicknesses laid down within BS EN ISO 1461. However with silicon bearing steels the chemistry of the galvanising process changes, resulting in the zinc coating continuing to increase in thickness as long as the steel remains immersed in the zinc.

Coatings up to three times as thick as the minimum requirements of BS EN ISO 1461 are both possible and practical to achieve. However the most cost effective coating thickness is usually twice the thickness required by BS EN ISO 1461.

4 Pre-galvanised (PG)

A zinc coating can be economically applied to steel sheet immediately after its manufacture; the result, pre-galvanised steel (to BS EN 10346) can be an attractive, bright material which is suitable for non-arduous environments.

Background

Pre-galvanised (or mill galvanised) steel is produced by unwinding steel coil and passing it continuously through a bath of molten zinc and then past air jets to remove excess zinc from the surface. The process is closely controlled to produce a thin, even and ripple-free zinc coating with very few imperfections.

Because this pre-galvanised steel coil must then be cut to shape during subsequent manufacture of support equipment, the edges of the finished components will have no zinc coating; this aspect, together with the relatively light zinc coating provided by the process, make pre-galvanised services supports suitable for indoor, non-corrosive environments (particularly where an aesthetically attractive appearance is important) but unsuitable for humid indoor or outdoor applications.

Specification

For steel for Swiftrack channel, steel grade is BS EN 10346 : 2009 Grade S250GD + Z275

5 Stainless steel (S)

For all practical purposes most stainless steel services supports can be regarded as maintenance free and suffering no corrosion. Inevitably there is a relatively high price to pay for these attractive properties but, in aggressive environments or where the cost or inconvenience of gaining subsequent maintenance access is prohibitive, this initial cost premium may well be justified.

Background

Stainless steel contains a high proportion of chromium (usually at least 17%) and the steel's remarkable immunity to corrosive attack is conferred by the chromium-rich oxide film which occurs naturally on its surface. This invisible film is not only inert and tightly bonded to the surface, it also re-forms quickly if the surface is damaged in any way.

The fire resistance of stainless steel is particularly noteworthy; tests have demonstrated that stainless steel cable supports can be expected to maintain their integrity for considerable periods even when exposed to direct flame temperatures exceeding 1,000°C. This may be an important consideration where the electrical circuits being supported provide for emergency power or control systems.

Stainless steel is also used where hygiene is a major consideration. Its advantages in such applications are again its excellent resistance to the various chemicals and washes which are frequently used for cleaning purposes and the smoothness of surface (depending on the finish specified) which minimises the soiling or contamination that can take place.

Specification

Many grades of stainless steel are available but the one generally used in aggressive marine environments is BS EN 10088 Grade 1-4404 (equivalent to S316L31, BS 1449: Part 2). This grade has improved corrosion resistance (particularly in the presence of chlorides) and high temperature strength. It is much used in the chloride-laden marine conditions which exist on offshore installations and in coastal regions.

For less aggressive environments BS EN 10088 Grade 1-4301 (equivalent to 304, BS 1449: Part 2) is the normal grade. This grade offers good corrosion resistance in internal applications and also has a good aesthetic quality, often used in the dairy and food industries. Final finishes with mechanical brushing or polishing are often used to provide a good looking and robust surface finish.

Pickling and passivation

A stainless steel surface will have excellent corrosion resistance due to the chromium oxide layer on the surface of the product. With some stainless steels however, the surface areas can become subject to corrosion due to the depletion of chromium during welding, or the introduction of iron during a machining process (not applicable to most cable management products).

Where a uniform appearance is important after carrying out welding processes, it is often specified that all surfaces should be pickled and passivated to remove the smoke stain from the welding process. Also where extreme corrosion resistance is called for, this process may help to remove crevice corrosion from around the welding area. Experience has shown that this is not normally necessary for the majority of cable management products.

Pickling

The pickling process involves the article being immersed in a blend of acids which dissolve iron and iron oxides which adhere to, or are embedded in, the surface of the stainless steel. These acids cause a removal of the surface layer of between 1 and 3 microns. The article is finally rinsed with water to complete this stage of the process.

Passivation

Passivation of the stainless steel will occur naturally after pickling when the oxygen in the air will react with the surface of the steel to form a passive chromium oxide layer. However it is usual for this passivation process to be speeded up by immersing the article in a nitric acid or other passivating agent.

Pickle and passivation is available as a special order finish, for more information please contact us on +44 (0) 845 605 4333.

Electropolishing

In various industries such as food, pharmaceutical and electronics, there is a requirement for easier cleaning and reduced bacterial growth on the surface of the stainless steel. This increased surface smoothness is achieved by a process called electropolishing.

Electropolishing is, in principle, a reversal of the electroplating process. The article is submerged in a special acid electrolyte and a DC current passed into the article and through the electrolyte. This process removes the high spots from the surface micro roughness leaving a surface which is bright and smooth.

6 Powder coated (E)

Powder coated finishes give excellent protection against scratches as they are normally between 50 - 100% harder than the equivalent wet paint finishes.

They are available in a wide range of colours and can have matt or various gloss finishes. In addition to the aesthetic qualities powder coating are available in various grades to cope with different site conditions. Grades are produced to cope with exterior applications where there can be high levels of ultra violet light or low smoke and fume applications for fire risk areas such as occur in tunnels.

Because powder coated finishes are inherently resilient and resistant to chemical or corrosive attack, these finishes are frequently used for protection only where there is no aesthetic requirement.

Background

The process of powder coating is carried out by applying the electrostatically charged powder to the article, and then passing the article into an oven where the powder is baked onto the surface of the article.

The application of the powder, and the associated stoving, can vary with different types of finish so the careful control of the process is required.

Specification

With such a wide variety of types of powder available it is necessary to specify in addition to the colour what the finish is required to do.

The colour can be specified by BS or RAL number, or by exact colour match if a sample of the colour is provided. The required gloss level should also be given.

The usual finish is for aesthetic indoor use, but if other qualities are required they should be clearly indicated at the outset as the powder cost and application cost can vary considerably between different types of powder.

Epoxy coated

Epoxy coatings are based on thermo-setting epoxy resins and give a very hard, durable finish suitable for internal applications. Epoxy coatings are usually quite thin but they have good chemical resistance with excellent adhesion and coating flexibility.

Polyester epoxy mix

Some modern coating developments consist of both polyester and epoxy. These give properties which are very suitable for use with cable support systems. The finish is thick and fairly soft and gives good protection to the cables being installed. The coating has strong adhesive properties and in cases of fire is halogen free with low smoke and fume characteristics. There are many types and grades of these materials and when using them advice should be sought from our technical sales support team, please contact us on +44 (0) 845 605 4333.

Architectural powder coatings

These powder coatings are formulated to meet the particular requirements of exterior environments. They are inherently resilient and resistant to damage and chemical or corrosive attack, providing maximum protection to the substrate. When subjected to high levels of ultra violet light present within sunlight the coatings have excellent gloss retention and resistance to chalking. These coatings would normally be applied over a galvanised finish.

Clear powder coating on pre-galvanised steel

Pre-galvanised steel with a clear polyester resin powder coating has excellent weathering characteristics.

This is due to the hard powder coated finish, which gives good mechanical protection and excellent corrosion resistance, being bonded to a sub surface of zinc. The zinc giving protection against deep surface scatches by cathodic action.

Pre-galvanised Steel

This finish is described on page 122.

Clear Powder Coating

This is carboxylated polyester resin finish which is a different compound to the powder coated finish described opposite.

The application is the same as standard powder coating, namely it is applied as an electrostaticaly charged powder to the article which is then melted onto the surface and baked into a hard surface in a stoving oven.

The resultant surface finish gives a corrosion resistance in the ASTM B117 Salt Spray test of 500 hours with creepage of corrosion less than 2mm from the scribe mark.