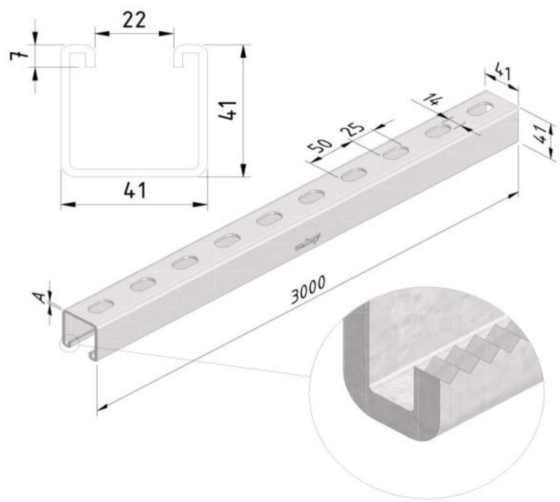
Technical specifications

SP41-41-3 (Supporting Profile)



Finishing:	Ultra galva							
Product	Number	Height (mm)	Width (mm)	Length (mm)	Dim A (mm)	Fmax (kN)	Unit	Packaging (unit)
SP41-41-15-3UG	19013	41	41	3000	1,5		M	3
SP41-41-25-3UG	18402	41	41	3000	2,5		M	3

Finishing:	Pre-galvanized							
Product	Number	Height (mm)	Width (mm)	Length (mm)	Dim A (mm)	Fmax (kN)	Unit	Packaging (unit)
SP41-41-15-3PG	16744	41	41	3000	1,5		M	3
SP41-41-20-3PG	16745	41	41	3000	2		M	3

Finishing:	Duplex							
Product	Number	Height (mm)	Width (mm)	Length (mm)	Dim A (mm)	Fmax (kN)	Unit	Packaging (unit)
SP41-41-25-3DU	10677	41	41	3000	2,5		M	3

Finishing:	Dipped galvanized							
Product	Number	Height (mm)	Width (mm)	Length (mm)	Dim A (mm)	Fmax (kN)	Unit	Packaging (unit)
SP41-41-25-3DG	10301	41	41	3000	2,5		M	3

Mounting instructions:

-

Load capacity:

Standard: -

Max. load: -

Load diagram: -

Information:

Coupler: -

Equipotential bonding: IEC61537

EC declaration: EC directive 2014/35/EU (Low voltage) as modified by directive 93/68/EEC (CE marking)

UG

ULTRA GALVA (UG)
is a high-performant metallic coating which offers an optimum surface protection in a wide variety of agressive and demanding environments, indoor as well as outdoor. The unique alloy of small amounts of magnesium and/or aluminium in the zinc bath provides ULTRA protection with a self-healing effect. Whilst zinc is essential for cathodic protection, magnesium prevents red rust. The passivation layer that comes on top, creates a seal that slows down the first traces of white rust.

ULTRA GALVA offers a number of advantages compared to the traditional hot dip finishing.
- the passivation layer offers a superior protection level. Hence, ULTRA GALVA, being cathodical, is self-healing in case of scratches, edges or perforations. Compared to hot dip, the articles remain very straight, no deflections appear nor flux or dull spots/ashes.
- ULTRA GALVA can conveniently be cold-processed without any risk on flakes because of the perfect adhesion of the coating to the metal.
- No zinc pins appear which enables one to install cables in a fast way avoiding any risk on damages to cables nor injuries of workers.
- Thanks to the longer life span, ULTRA GALVA does not require ongoing maintenance nor post painting actions.
- Three times less zinc is being applied compared to hot dip finishing. There is hence a lower impact on natural ressources as well as less pollution. On top, its production process generates less CO2 emission and ULTRA GALVA is 100% recyclable.

ULTRA GALVA is hence a vary valuable environmentally friendly alternative for the traditional stainless steel and hot-dip finishing !

PG

Sendzimir galvanized (EN 10143) PG (pre-galvanized)
Products made of Sendzimir (pre-galvanized) or continuous hot-dip galvanized steel sheet and coils are mostly used wherever limited chemical contamination is likely, for example, in of ces, industrial buildings, covered parking lots, etc.
Characteristic of this steel type is that – prior to mechanical deformation – it is given a zinc coating by means of a continuous dipping process. This zinc coating is easily deformed. A cathodic action occurs on cut surfaces (up to 1.5mm) that protects against oxidation.
First, the steel is chemical cleaned and roughened in order to achieve a good bond. After the dipping process, the surplus zinc is blown off and one obtains an extra passivating coat (an ultra-thin protective coat) to prevent oxidation of the zinc coating (white rust). The coating thickness is usually expressed in g/m2. The most deployed type of Sendzimir steel is Z 275 = 275g/m2 (weighed on both sides), this corresponds to 18-20 µm (micron).
Sendzimir galvanized steel sourced from modern galvanizing lines has, in general, a uniform, shiny appearance. The previous, common fl owery surface is scarcely seen these days. This effect is obtained under the infl uence of lead but has no eff ect on the quality of the coating. The use of lead was banned due to the ever more stringent environmental standards.

DU

Duplex coats DU
For applications where a very high corrosion resistance is required, such as the petrochemical industry or maritime applications, we advise our customers to use a duplex coating. A duplex coating is composed of a hot-dip galvanizing, followed by a powder coating (in two coats or one).
Research has showed that galvanized parts with an (epoxy) powder coating, afford corrosion resistance that is up to 2.5 times higher than the sum of the wear life of both systems separately.
For example: the wear life of hot-dip galvanizing is 10 years while that of an epoxy coating is 5 years. So, in combination, this gives a wear life of up to 37 years. Usually, the added cost of a duplex coating is easily outweighed by the cost price of regularly recurring maintenance every few years. (see underneath `hot-dip galvanizing’).

DG

Hot-dip galvanized (EN ISO 1461) DG (dipped-galvanised)
Whenever cable support systems are exposed to the elements and/or caustic substances (such as petrochemical applications), they are given an additional treatment in the form of hot-dip galvanizing.
Hot-dip galvanizing is a materials science process designed to render the steel non-corroding. If this coating is breached, the zinc will act as a sacrifcial anode, so that the iron is protected by the zinc (aka cathodic protection). During galvanization, three alloys are formed: an iron-zinc alloy, a zinc-iron alloy and also a zinc alloy. The pre-treatment of the steel is crucially important in order to achieve a good bond.
The following process steps are involved: degreasing, rinsing, pickling, re-rinsing, fl uxing, drying and hot-dipping. The coating thickness depends on the steel composition, the material thickness and the time spent in the zinc bath. In the galvanizing standard NEN-EN-ISO 1461, the minimum coating thickness are prescribed (as shown in following overview), just as the zinc shrinkage per year which will depend on environmental factors (see table entitled `Corrosion classes'). In addition, the zinc coating forms an excellent substrate for other post-treatments, such as applying a powder coating and coats of paint (better known as the duplex system).
An added advantage of hot-dip galvanizing is that along the edges and pointy bits, where objects are usually extra susceptible to corrosion, the zinc coating is thicker because of the behaviour of the liquid.
Minimum thicknesses of the zinc coating according to ISO 1461
- Using the hot-dip method
Material thickness ≥ 6 mm = min. zinc coating thickness (average) 85µm
Material thickness ≥ 3 mm to < 6 mm = min. zinc coating thickness (average) 70µm
Material thickness ≥ 1,5 mm to < 3 mm = min. zinc coating thickness (average) 55µm
Material thickness < 1,5 mm = min. zinc coating thickness (average) 45µm
- Using the drum method
Material thickness ≥ 3 mm = min. zinc coating thickness (average) 55µm
Material thickness < 3 mm = min. zinc coating thickness (average) 45µm

Field of application according to resistance against corrosion:

Corrosion classes according EN ISO 12994

Corrosion class	Atmospheric corrosion	Indoor environment	Outdoor environment	Surface treatments
C1	<0,1µm	Heated buildings with neutral atmospheres: offices, shops, schools, hotels.		**Electro-galvanised (EG) EN ISO 2081**
C2	0,1 - 0,7µm	Unheated buildings where condensation may occur: sports halls, warehouses, shops.	Rural areas. Atmosphere with low impurities.	**Pre-galvanised (PG) EN 10327 – EN 10143**
C3	0,7 - 2µm	Production facilities with high moisture levels and some air impurities due to industrial processes: production plants.	City and industrial atmosphere, some impurities, coastal areas with low salt loads.	**Dipped-galvanised (DG) EN ISO 1461**
C4	2 - 4µm	Production facilities with high moisture levels and high air impurities due to industrial processes: swimming pools, Chemical industry.	Industrial areas and coastal areas with low salt load.	**Dipped-galvanised (DG) EN ISO 1461 Polyester coating (CO) EN ISO 12944**
C5-I	4 - 8µm	Polyester coating (CO)	Industrial areas with high moisture level and aggressive atmosphere.	**Duplex (DU) (Dipped galvanised + Polyester coating) Stainless steel AISI 316L**
C5-M	4 - 8µm	EN ISO 12944	Coastal or offshore areas with salt load.	**Duplex (DU) (Dipped galvanised + Polyester coating)**

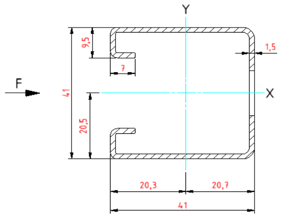
Classification for resistance against corrosion according to IEC61537

Class	Reference- Material and Finish
0(a)	None
1	Electroplated to a minimum thickness of 5 µm
2	Electroplated to a minimum thickness of 12 µm
3	Pre-galvanised to grade 275 to EN 10327 and EN 10326
4	Pre-galvanised to grade 350 to EN 10327 and EN 10326
5	Post-galvanised to a zinc mean coating thickness (minimum) of 45 µm according to ISO 1461 for zinc thickness only
6	Post-galvanised to a zinc mean coating thickness (minimum) of 55 µm according to ISO 1461 for zinc thickness only
7	Post-galvanised to a zinc mean coating thickness (minimum) of 70 µm according to ISO 1461 for zinc thickness only
8	Post-galvanised to a zinc mean coating thickness (minimum) of 85 µm according to ISO 1461 for zinc thickness only (usually high silicon steel)
9A	Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1-4301 without a post-treatment (b)
9B	Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1-4404 without a post-treatment (b)
9C	Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S30400 or EN 10088 grade 1-4301 with a post-treatment (b)
9D	Stainless steel manufactured to ASTM: A 240/A 240M – 95a designation S31603 or EN 10088 grade 1-4404 with a post-treatment (b)

(a) For materials which have no declared corrosion resistance classification.
(b) The post-treatment process is used to improve the protection against crevice crack corrosion and the contamination by other steels.

SP41-41-15 (point load, support two points)

Breaking stress St37	370	N/mm^2
E	210000	N/mm^2
sb (allowed bending stress St37)	160	N/mm^2
Ix	60010	mm^4
Iy	42276	mm^4
ex	20,3	mm
ey	20,5	mm
Minimum safety factor	2	(static load)
Wx	2927	mm^3
Wy	2083	mm^3
Mb (bending moment)	333	Nm



Maximum deflection / force calculated based on max. allowed bending stress

Support L (mm)	**Force F(N)**	**Deflection f (mm)**
250	5328	0,20
500	2664	0,78
1000	1332	3,13
1500	888	7,03
2000	666	12,50
2500	532	19,51
3000	444	28,13
3500	380	38,23
4000	333	50,01
4500	296	63,30
5000	266	78,03
5500	242	94,48
6000	222	112,53

SP41-41-15 (distributed load, support 2 points)

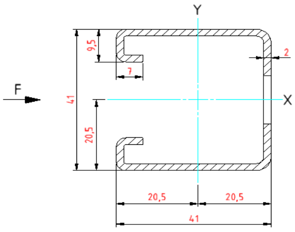
Breaking stress St37	370	N/mm^2
E	210000	N/mm^2
sb (allowed bending stress St37)	160	N/mm^2
Ix	60010	mm^4
Iy	42276	mm^4
ex	20,3	mm
ey	20,5	mm
Minimum safety factor	2	(static load)
Wx	2927	mm^3
Wy	2083	mm^3
Mb (bending moment)	333	Nm

Maximum deflection / force calculated based on max. allowed bending stress

Support L (mm)	**Force F(N)**	**Deflection f (mm)**
250	10656	0,24
500	5328	0,98
1000	2664	3,91
1500	1776	8,79
2000	1332	15,63
2500	1065	24,41
3000	888	35,16
3500	761	47,85
4000	666	62,51
4500	592	79,12
5000	532	97,53
5500	484	118,10
6000	444	140,66

SP41-41-20 (point load, support two points)

Breaking stress St37	370	N/mm^2
E	210000	N/mm^2
sb (allowed bending stress St37)	160	N/mm^2
Ix	76499	mm^4
Iy	52913	mm^4
ex	20,5	mm
ey	20,5	mm
Minimum safety factor	2	(static load)
Wx	3732	mm^3
Wy	2581	mm^3
Mb (bending moment)	412	Nm



Maximum deflection / force calculated based on max. allowed bending stress

Support	**Force**	**Deflection**
L (mm)	**F(N)**	**f (mm)**
250	6592	0,19
500	3296	0,77
1000	1648	3,09
1500	1098	6,95
2000	824	12,36
2500	659	19,31
3000	549	27,79
3500	470	37,78
4000	412	49,44
4500	366	62,53
5000	329	77,11
5500	299	93,27
6000	274	110,96

SP41-41-20 (distributed load, support 2 points)

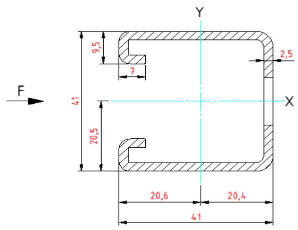
Breaking stress St37	370	N/mm^2
E	210000	N/mm^2
sb (allowed bending stress St37)	160	N/mm^2
Ix	76499	mm^4
Iy	52913	mm^4
ex	20,5	mm
ey	20,5	mm
Minimum safety factor	2	(static load)
Wx	3732	mm^3
Wy	2581	mm^3
Mb (bending moment)	412	Nm

Maximum deflection / force calculated based on max. allowed bending stress

Support	**Force**	**Deflection**
L (mm)	**F(N)**	**f (mm)**
250	13184	0,24
500	6592	0,97
1000	3296	3,86
1500	2197	8,69
2000	1648	15,45
2500	1318	24,13
3000	1098	34,74
3500	941	47,28
4000	824	61,80
4500	732	78,16
5000	659	96,53
5500	599	116,78
6000	549	138,96

SP41-41-25 (point load, support two points)

Breaking stress St37	370	N/mm^2
E	210000	N/mm^2
sb (allowed bending stress St37)	160	N/mm^2
Ix	91336	mm^4
Iy	61976	mm^4
ex	20,6	mm
ey	20,5	mm
Minimum safety factor	2	(static load)
Wx	4455	mm^3
Wy	3009	mm^3
Mb (bending moment)	481	Nm



Maximum deflection / force calculated based on max. allowed bending stress

Support L (mm)	Force F(N)	Deflection f (mm)
250	7696	0,19
500	3848	0,77
1000	1924	3,08
1500	1282	6,93
2000	962	12,32
2500	769	19,23
3000	641	27,70
3500	549	37,68
4000	481	49,28
4500	427	62,28
5000	384	76,83
5500	349	92,95
6000	320	110,64

SP41-41-25 (distributed load, support 2 points)

Breaking stress St37	370	N/mm^2
E	210000	N/mm^2
sb (allowed bending stress St37)	160	N/mm^2
Ix	91336	mm^4
Iy	61976	mm^4
ex	20,6	mm
ey	20,5	mm
Minimum safety factor	2	(static load)
Wx	4455	mm^3
Wy	3009	mm^3
Mb (bending moment)	481	Nm

Maximum deflection / force calculated based on max. allowed bending stress

Support L (mm)	Force F(N)	Deflection f (mm)
250	15392	0,24
500	7696	0,96
1000	3848	3,85
1500	2565	8,66
2000	1924	15,40
2500	1539	24,06
3000	1282	34,63
3500	1099	47,14
4000	962	61,60
4500	855	77,95
5000	769	96,17
5500	699	116,35
6000	641	138,52