

Suitability of Materials and finishes.

Pre-galvanised (PG)

Pre-galvanised is our standard finish in accordance with **BS EN 10346**

Typical Zinc coating thicknesses:

- Cable Trunking straights up to 150x100mm in size are pre galvanised to grade 140 **7µm (microns)** minimum
- Cable Trunking straights sizes 150x150mm and above and all trunking fittings are pre galvanised to grade 275 **13µm (microns)** minimum
- Cable Tray and Cable Ladder that are pre galvanised to grade 275 **13µm (microns)** minimum

Mill Finish (PM)

Excellent for welding and finishing on site. Ideal base for Galvanising and other surface finishes. Mill Finish is mild steel complying with **BS EN 10025-2**

Hot Dipped Galvanised (HDG)

An excellent solution for outdoor environments and has a unique metallurgical structure which gives excellent resistance to mechanical damage.

In accordance with **BS EN ISO 1461**. For standard product range zinc coating thicknesses refer to Table 1.

Stainless Steel (SS)

Ideal for highly corrosive and extreme or marine environmental conditions. Stainless steel to grade 1.4404 (316L) and complies with **BS EN 10088-1** and **BS EN 10088-2**

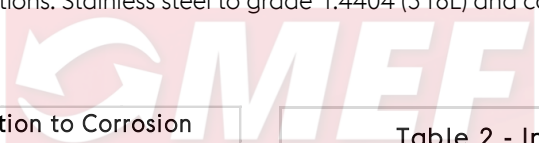


Table 1 - Life to first maintenance of Metsec products in relation to Corrosion categories

Product Range	General Thickness µm (microns)	Life to first maintenance of zinc coating in different corrosion categories (years)				
		C1	C2	C3	C4	C5
Cable Trunking	7	100 +	10 - 70	3.5 - 10	1.75 - 3.5	0.87 - 1.75
Pre-Galv Cable Tray	13		18.5 - 130	6.5 - 18.5	3.2 - 6.5	1.6 - 3.2
Pre-Galv Ladder	13					
Pre-Galv Metal Framing	13		64 - 100 +	22.5 - 64.2	11.2 - 22.5	5.6 - 11.25
HDG Cable Tray	45					
HDG Cable Ladder	55					
HDG Metal Framing	55		78.5 - 100+	22.7 - 78.5	13.7 - 27.5	6 - 13.75

Table 2 - Indicative corrosion rates for different environments

Corrosion Category	Examples Of typical corrosion environments	Average annual zinc corrosion rate (µm/year)
C1	Interior: Dry	< 0.1
C2	Interior: Occasional condensation Exterior : Rural	0.1 to 0.7
C3	Interior: High humidity, some air pollution Exterior: Urban inland or mild coastal	0.7 to 2
C4	Interior: Swimming pools, chemical plants Exterior: Industrial inland or urban coastal	2 to 4
C5	Exterior: Industrial with high humidity or high salinity coastal	4 to 8

Longevity (years)

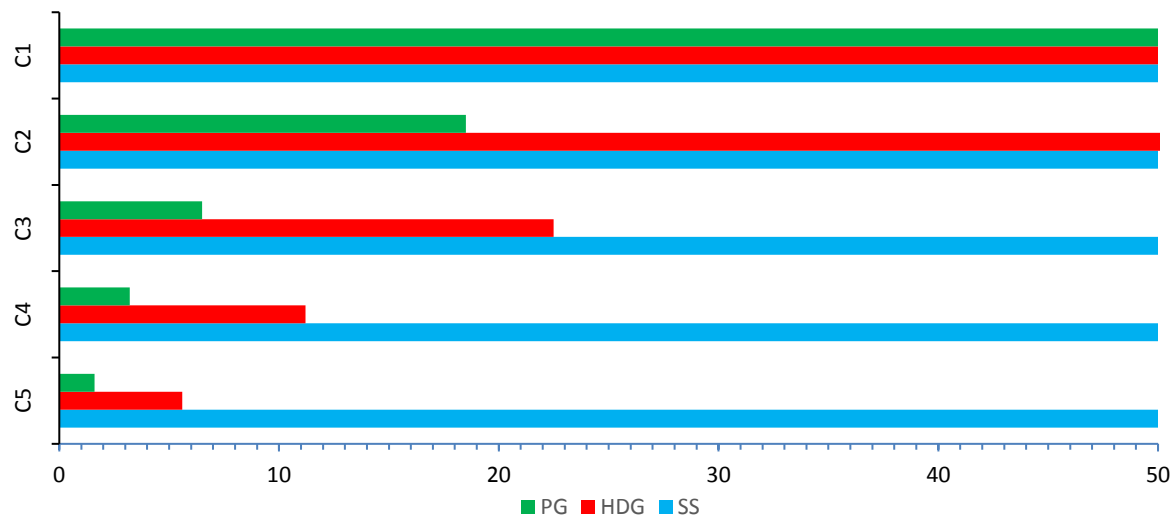


Table 5 - Classification for resistance against corrosion

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 BS EN 10346
4	Pre-Galvanised to grade 350 to BS EN 10346
5	Post-Galvanised to a zinc mean coating thickness (minimum) of 45 µm according to BS EN ISO 1461 for zinc thickness only
6	Post-Galvanised to a zinc mean coating thickness (minimum) of 55 µm according to BS EN 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
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 without a post treatment (b)
9D	Stainless Steel manufactured to ASTM: A 240/A 240M - 95a designation S31603 or EN 10088 grade 1 - 4404 without 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

Class	Minimum Thickness μm	Minimum coating thickness given in BS EN 10346:2015 μm	Mean coating thickness (min) to ISO 1461 μm
0 (a)	-	-	-
1	5	-	-
2	12	-	-
3	-	13	-
4	-	17	-
5	-	-	45
6	-	-	55
7	-	-	70
8	-	-	85

Product Range	PG (Class)	HDG (Class)	SS (Class)
Cable Tray	3	5	9B
Cable Ladder	3	6	9B
Metal Framing	3	6	9B

Powder Coated (RAL)

Normally used as an extra layer of protection for Pre-galvanised products or to visually improve on the appearance of the product. The selection of paint colour requires either a BS or RAL number followed by a percentage of gloss to **BS EN 13438**

Matt 30% Semi 60% Gloss 85%

Zinc Plated (ZP)

This coating process is often referred to as bright zinc plating (BZP). Electroplating with zinc may be used when a smooth bright decorative finish is required. Parts can be coloured or colourless depending on the type of passivation process used. It is generally used for internal applications where a low degree of corrosion resistance is acceptable.

To **BS EN ISO 2081** a minimum thickness or service condition number (see Table 6) is required from the customer.

Classification Number and Conversion Coating Suffix	Service condition	Thickness, Min μm
Fe/Zn 25	SC4 (Very severe)	25
FE/Zn 12	SC3 (Severe)	12
Fe/Zn 8	SC2 (Moderate)	8
Fe/Zn 5	SC1 (Mild)	5

Zinc Dichromate (ZD)

Dichromate is a sealer that is deposited on inorganic plating, such as zinc plating. It is very thin and in itself does not provide much corrosion resistance. However, when it is deposited onto a metal, it enhances the corrosion resistance and is an excellent base of a paint that can be applied over the plating. Often used for clean rooms, data centres and other sterile environments, a minimum thickness and service condition number (Table 6) are required from the customer. This finish is to **ASTM B633**

Nickel plating (NP)

Nickel electroplating is a technique of electroplating a thin layer of nickel onto a metal object. The nickel layer can be decorative, provide corrosion resistance or wear resistance. With Nickel being rated lower on the galvanic series chart it is sometimes used to provide a cathode between two dissimilar metals. Nickel plating requires the thickness of coating in microns (μm), the type of finish (see Table 7) and also the Service condition number (see Table 8). In accordance with **BS EN ISO 1456**

Table 7 - Types of nickel finishes

b	For decorative, sulphur-containing bright, semi-bright, or satin nickel with a lamellar structure
i	For high-sulphur-containing bright, semi-bright, or dull nickel with a lamellar structure that has not been mechanically polished;
p	For dull or semi-bright nickel which has been mechanically polished;
s	For sulphur-free dull or semi-bright nickel with a columnar structure this has not been mechanically polished;
d	For Double or triple-layer nickel

Table 8 - Service condition number

1	Mild	Service indoors in warm dry atmospheres, e.g. offices.
2	Moderate	Service indoors where condensation may occur, e.g. bathroom, kitchens
3	Severe	Service outdoors where occasional or frequent wettings by rain or dew may occur, e.g. outdoor furniture; bicycles, hospital goods.
4	Very Severe	Service outdoors in very severe conditions, e.g. components of automobiles, boat fittings.
5	Exceptionally Severe	Service outdoors in exceptionally severe conditions where long-time protection, such as longer than 10 years, of the substrate is required, e.g. vehicle components; bumpers, wheels.

