Conditions for a good result after galvanizing - information from buyer to galvanizer

Rev.1

1) The steel shall be suitable for galvanizing
Hot dip galvanizing is a chemical reaction between steel and zinc - that is why the steel composition is of large importance for the outcome. It is important to state that the steel should be suitable for hot dip galvanizing when the material is purchased.

Suitable material has either a silicon + phosphorus content < 0.03 % by weight or a silicon content > 0.14 % by weight.

The layer thickness increases with increasing silicon content over 0.14 % by weight. Too high coating thickness is not desirable, since the layers may become brittle. Steel with higher silicon content than 0.35 % by weight is normally not used for galvanizing.

2) Thermal cutting of the steel
Thermal cutting affects the steel in the cutted surface so that both the reactivity and the layer adhesion may change. Such surfaces should therefore be grinded or blasted prior to galvanizing to ensure a good result.

3) Significant surfaces
In cases where there is special requirements on certain surfaces of the product, these must be identified prior to galvanizing.

4) Coating thickness

Table 1.

Steel thickness in mm	Local coating thickness in µm	Mean coating thickness i µm
Steel > 6 mm	70	85
Steel > 3 - ≤ 6 mm	55	70
Steel ≥ 1,5 - ≤ 3 mm	45	55
Steel < 1,5 mm	35	45
Castings ≥ 6 mm	70	80
Castings < 6 mm	60	70

Table 1 shows the layer thicknesses according to the standard EN ISO 1461. Unless otherwise specified when ordering, layer thicknesses according to this table will be delivered.

Coating thickness in microns according to the national annex NA of the standard SS-EN ISO 1461 are shown in Table 2 (annex NA is only present i the Swedish version (SS) of EN ISO 1461). If the customer requires thicker layers than the standard, see Table 1, this must be agreed with the galvanizer. The steel must then be sufficiently reactive, ie steel with higher silicon content is needed, see table 3 below.

Table 2.

Steel thickness	Fe/Zn 115		Fe/Zn 165		Fe/Zn 215	
	Min. local value	Min mean value	Min. local value	Min. mean value	Min. local value	Min. mean value
Steel > 6 mm	100	115	145	165	190	215
Steel > 3 - ≤ 6 mm	85	95	100	120	115	140
Steel ≥ 1 - ≤ 3 mm	60	70	70	95		

Table 3.

	Target value (%)	Limits (%)
Fe/Zn 115	0,18	0,15-0,21
Fe/Zn 165	0,25	0,22-0,28
Fe/Zn 215	0,32	0,29-0,35

Table 3. Silicon contents necessary to achieve the layer thicknesses as given in table 2.

5) Supplementary treatments or other special requirements
If painting or other post treatment of the glalvanized steel will be performed, the galvanizer has to be informed about this prior to galvanizing.

Galvanizing is primarily a corrosion protection method, but very nice design surfaces can also be created. However, it is important to inform the galvanizer when special demands on the surface finish exists. In cases where the product will be used in architectural contexts (on building facades, balcony railings, etc.) this should be taken into consideration already in the procurement of steel and the construction design, see paragraphs above. Furthermore, the galvanizer has to be informed about the requirements for surface finish, which may affect how the hot dip galvanizing is performed. In some cases it may be advantageous to make pre galvanizing of a few details before a larger amount of products are galvanized.

6) Information about the constructions
The purchaser shall provide information about size, weight and shape of the constructions that will be galvanized.

7) Cold formed constructions
In cases where the steel is cold formed the galvanizer should be informed about that before galvanizing. Under certain conditions, cold formed constructions may require special treatment, and it may be desirable to make a pre galvanizing of a few details before a larger amount of products are galvanized.

8) Dimensional tolerances
Any requirements for dimensional tolerances on mating surfaces shall be specified prior to galvanizing. The zinc layer builds up on the surfaces, which may affect installation. Discuss with the galvanizer so that both parties agree in cases where specific requirements exist.

nordic GALVANIZERS

Telefon: + 46 8 4466760, Mail: info@nordicgalvanizers.com, www.nordicgalvanizers.com