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**ISO**

107

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION  
R 1461**

**REQUIREMENTS FOR HOT DIP GALVANIZED COATINGS  
ON FABRICATED FERROUS PRODUCTS**

1st EDITION

April 1970

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Printed in Switzerland

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## BRIEF HISTORY

The ISO Recommendation R 1461, *Requirements for hot dip galvanized coatings on fabricated ferrous products*, was drawn up by Technical Committee ISO/TC 107, *Metallic and other non-organic coatings*, the Secretariat of which is held by the Ente Nazionale Italiano di Unificazione (UNI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1461 which was circulated to all the ISO Member Bodies for enquiry in May 1968. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	India	Spain
Belgium	Iran	Sweden
Chile	Israel	Switzerland
Czechoslovakia	Italy	Thailand
Finland	Norway	Turkey
France	Poland	U.A.R.
Germany	Portugal	United Kingdom
Hungary	South Africa, Rep. of	

The following Member Bodies opposed the approval of the Draft :

Netherlands  
New Zealand

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in April 1970, to accept it as an ISO RECOMMENDATION.

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**REQUIREMENTS FOR HOT DIP GALVANIZED COATINGS  
ON FABRICATED FERROUS PRODUCTS**

**1. SCOPE**

This ISO Recommendation relates to hot dip galvanized coatings on structural steel, steel structures, steel sheet fabrications, assemblies of tubes, large tubes already bent or welded before galvanizing, containers, wire-work fabricated from uncoated steel wire, small articles processed in bulk, steel castings, steel forgings, steel stampings, iron castings and similar products.

This ISO Recommendation is valid only for general hot dip galvanizing and does not apply to semi-finished products such as wire, tube or sheet.

**2. GENERAL REMARKS**

Castings should be as free as possible from surface porosity and shrinkage holes and, unless already clean, should be cleaned by shot blasting, electrolytic pickling or other methods specially suitable for castings.

The hot dip galvanizer should not be responsible for changes in mechanical properties of the basis material as a result of hot dip galvanizing.

When it is necessary to bore vent holes in products to prevent explosions during hot dip galvanizing, this should be done by the purchaser or, after the written consent of the purchaser, by the hot dip galvanizer. The purchaser is strongly recommended to seek the advice of the hot dip galvanizer before designing or making a product which is subsequently to be hot dip galvanized.

After solidification, remelting of parts of the coating by gas torches or other means should be allowed. With small articles processed in bulk, the number of articles sticking together after cooling should not exceed 2 % of the total. Threads may only be required to fit after hot dip galvanizing if a suitable allowance has been made for the coating in making the thread.

Oversize tapping or retapping of nuts and tapped holes is required when the bolt or male thread is hot dip galvanized. Although tapping or retapping after hot dip galvanizing results in an uncoated female thread, the coating on the engaged male thread will retard corrosion of both components. Male threads should not be rethreaded after hot dip galvanizing.

**3. SAMPLING**

The method of sampling should be agreed between the contracting parties.

**4. ADHESION OF THE COATING**

The coating should be sufficiently adherent to withstand handling consistent with the normal use of the article without peeling or flaking.

## 5. WEIGHT OF COATING

The weight of the coating per square metre of the surface (one side only) should comply with both the minimum average and the minimum individual sample coating requirements in the following Table unless a greater or a smaller weight of coating has been agreed beforehand between the purchaser and hot dip galvanizer. Products not mentioned in the Table should be the subject of agreement between the purchaser and hot dip galvanizer.

TABLE - Weight of the coating

Product	Minimum average coating weight on the agreed number of samples	Minimum coating weight on any individual sample
	g/m <sup>2</sup>	g/m <sup>2</sup>
Steel over 5 mm thick	500	450
Steel between 1 mm and 5 mm thick	To be agreed between the hot dip galvanizer and the purchaser. The coating weight obtained will in general increase with the thickness of the steel.	
Steel less than 1 mm thick	350	300
Nuts and bolts with screw threads over 9 mm diameter	375	300
Castings (iron and steel)	500	450

*Examples*

- (1) Samples : five bolts over 9 mm diameter. The individual coating weights are

$$410 \text{ g/m}^2, 390 \text{ g/m}^2, \underline{290 \text{ g/m}^2}, 400 \text{ g/m}^2, 410 \text{ g/m}^2$$

$$\text{Average coating weight} = 380 \text{ g/m}^2$$

The average coating weight is in accordance with the above Table.

The requirements are not fulfilled, however, as the coating weight of one sample (underlined) is below the minimum coating weight.

- (2) Samples : five test samples of a steel product over 5 mm thick. The individual coating weights are

$$500 \text{ g/m}^2, 490 \text{ g/m}^2, 470 \text{ g/m}^2, 480 \text{ g/m}^2, 470 \text{ g/m}^2$$

$$\text{Average coating weight} = 482 \text{ g/m}^2$$

The coating weight of all test samples is higher than the minimum coating weight. The average coating weight, however, is lower than the specified average coating weight and therefore the requirements are not fulfilled.