

# Hot-Dip Galvanizing Service

## BS 729:1971 Hot-Dip Galvanized Coatings on Iron & Steel Articles

Table 1. Coating Weight*		Minimum average coating weight for any individual test area † (in g/m <sup>2</sup> )
Category		
Steel articles which are not centrifugal ‡	5mm thick and over	610
	Below 5mm but not less than 2 mm	460
	Below 2mm but not less than 1 mm	335
Grey and malleable iron castings		610
Threaded work and other articles which are centrifuged §		305

\* The coating weight per unit area of the surface is given in terms of g/m<sup>2</sup> of surface. If the coating thickness is required, the following conversion factor should be used, which assumes the density of the coating to be 7 g/cm<sup>3</sup>.

$$1 \text{ g/m}^2 = 0.14\mu\text{m} \quad (305 \text{ g/m}^2 = 1 \text{ oz/ft}^2 = 43\mu\text{m} = 0.0017 \text{ in.})$$

† For small articles the test area shall consist of the whole surface or agreed parts thereof. For large articles e.g. structural steel sections, the minimum coating weight referred to in Table 1 shall be the average of determinations over a test area of 600 to 1200 mm<sup>2</sup>

‡ Where the threads of bolts unsuitable for centrifuging are brushed after galvanizing the coating weights on the brushed areas shall be exempt from the requirements of Table 1.

§ Bolts are galvanized after screwing unless otherwise specified. Bolts which are to be fitted with nuts are screwed to the tolerance laid down in the appropriate specification without allowance being made for galvanizing. The nuts are tapped up to 0.4 mm oversize after galvanizing and the threads are oiled.

## ASTM A 153-67 Zinc Coating (Hot-Dip) on Iron & Steel Hardware

Class of Material		Minimum weight of Zinc Coating oz per sq. ft. of surface <sup>a</sup>	
Category		Average of specimens tested <sup>b</sup>	Any individual specimen
<b>Class A</b> - Castings - Malleable iron, steel		2.00	1.80
<b>Class B</b> - Rolled, pressed and forged articles (except those that would be included under classes C and D)	B-1-3/16in. and over in thickness and over 8in. in length	2.00	1.80
	B-2-below 3/16in. in thickness and over 8in. in length	1.50	1.25
	B-3-8in. and below in length and any thickness	1.30	1.10
<b>Class C</b> - Bolts and drive screws (over 3/8 in. in diameter) and similar articles. Washers 3/16 and 1/4 in. thick.		1.25	1.00
<b>Class D</b> - Screws, stove bolts, and bolts (3/8 in. below in diameter), rivets, nails, and similar articles. Washers under 3/16 in. thick.		1.00	0.85

### Weight of Zinc Coating for various classes of material

- NOTE 1: Length of the piece, stated in classes B-1, B-2 and B-3, refers to the overall dimension and not its developed length.
  - NOTE 2: One ounce of zinc per square foot of surface, based upon mathematical calculations, corresponds to a coating thickness of 0.0017 in.
- a In the case of long pieces, such as anchor rods and similar articles over 5 ft. in length, the weight of coating shall be the average of the determinations made at each end and the middle of the article. In the case of composite pieces, each part shall be tested separately, as they may fall in different classifications.
- b The number of specimens to be tested per order shall be agreed upon, at the time of purchase by the manufacturer and the purchaser.

## ASTM A 123-69 Zinc (Hot-galvanized) Coatings on products fabricated from rolled, pressed, and forged steel shapes, plates, bars and strip

### "Weight of Coating"

The weight of the zinc coating per square foot of actual surface, for 1/8 in. and 3/16 in. steels shall average not less than 2.0 oz. and no individual specimen shall show less than 1.8 oz. For 1/4 in. and heavier material, the coating weights shall average not less than 2.3 oz. and no individual specimen shall show less than 2.0 oz. (See Note 1)

NOTE 1: 1 oz of zinc per square foot of surface, based upon mathematical calculation, corresponds to a coating thickness of 0.0017 in.