SURFACE TREATMENT

ZINC ELECTROPLATING_ GENERAL

DSF 1.1.1

Description:

Zinc Electroplating acts as a sacrificial barrier by significantly reducing the corrosion rate when applied to ferrous metals. In a corrosive environment the zinc plating slowly corrodes forming a white protective powder coating. To delay the appearance of this 'white rust' a **TRIVALENT** Chrome conversion surface treatment (passivation) is added, which is RoHS compliant.

This DSF 1.1.1 Engineering Standard is based on BS EN ISO 2081: 2018. Refer to this BS EN ISO standard for more detail if required.

Appearance:

The zinc-plated article shall be free from visible plating defects such as blisters, pitting or un-plated areas. The plating will be smooth and adherent, clean and free from damage.
The adhesion is tested by rubbing the surface with a fragment of white paper on the tip of the finger, and then examining the rubbed surface. Failure is identified by the appearance of anything more than the faintest stain on the paper or by indications that the plated surface has been rubbed through.

NOTE:

Heat treated items will require a pre-treatment process to ensure adequate adhesion of plating to the base metal. The engineering drawing will indicate the material substrate and its surface hardness.
Higher tensile steel parts can be weakened by absorption of hydrogen during the plating process & will require baking before passivation to minimise embrittlement.
Surface finish, prior to plating: General 1.6 Ra µm.

Definition:

All zinc plating will be protected by a **TRIVALENT** Chrome conversion coating (passivation) in accordance with RoHS and WEE directives. **HEXAVALENT** Chromium Passivation **must not** be used. Typically, this film is a complex combination of mixed metal oxides which are blended to achieve different corrosion performances (thickness) & colours, see table on page 2.

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COATING TYPE		TYPICAL APPEARANCE	DRAWING CALLOUT a*
CODE	NAME		
A	CLEAR	Transparent, clear to bluish	DSF 1.1.1
Ba	BLEACHED	Transparent, with slight iridescence	
C	IRIDESCENT	Yellow iridescence	DSF 1.1.1 IRIDESCENT YELLOW

a* Note in the event of a supplier receiving a drawing from ASM specifying any DSF 1.1.1 drawing callout not shown in the table above the supplier must contact ASM for clarification using the following email address:
engineering_enquiries@asmpt.com

Chromate coatings described in the table above might not necessarily be specified for the improvement of the adhesion of paints and varnishes. All chromate coatings might or might not contain hexavalent chromium ions. **Codes A and C are the preferred company options with Code A as the default when DSF 1.1.1. is called up on a drawing.**

a This is a two-stage process: yellow iridescent followed by a leaching/sealing solution for hexavalent chromium passivates or a thicker trivalent passivate (sometimes referred to as "heavyweight") than that used to produce a clear deposit.

Passivate Thickness:

Unless otherwise stated the default call out on the Engineering Drawing is: **DSF 1.1.1** this is a clear transparent passivate which has a bright silver/bluish appearance and a **of coating thickness of 12µm - 25µm (Fe/Zn12-25/A).** Coating thicknesses outside this range need to be specified on the drawing. At **12µm** coating thickness there should be no evidence of corrosion (red dust) after a 120 hours continuous salt spray test.
This is equivalent to Service condition 2 and above called up in BS EN ISO 2081:**2008**

Properties:

- Low cost.
- Attractive appearance offering basic protection against corrosion.

ASM (DEK) Applications:

For use where components require protection but are not subject to high wear applications.