

SURFACE TREATMENT**ELECTROLESS NICKEL****DSF 1.4.1****Definition:**

An electroless plating process which uses an autocatalytic chemical reaction (a reaction that increases as the materials react) to deposit a non-porous surface coating of nickel/phosphorus onto a wide range of substrates. Components plated in electroless nickel possess an excellent combination of wear, corrosion and chemical resistance. Increasing the phosphorous content to 10% or above maximizes these properties.

This process provides a highly accurate layer with no deviation in plating depth over the entire surface of the component, regardless of the complexity of its design. The uniformity of its deposit is why electroless nickel plating is increasingly preferred over conventional electrolytic plating.

Treatment Information:

The engineering drawing will identify the area to be treated & the coating thickness will be defined via the DSF designation within the drawing frame. Deposit hardness approximately 33 Rc, but on request can be increased by means of a secondary heat treatment.

The chemistry of the solution can be varied to give the coating different properties, please refer to **(BS EN 4527:2003)**:-

Appearance:

The finished article shall be free from visible plating defects such as blisters, pits or un-plated areas. The plating will be smooth and adherent, clean, and free from damage.

Properties:

- Provides a reduction in friction (Lubricity).
- Offers very good wear resistance.
- A bright attractive, corrosion resistant uniform coating. (within $\pm 10\%$)
- A tendency to be magnetic. Dependant on Phosphorous content. (Lower content = higher magnetism).
- Electrically conductive (non-insulating).

ASM (DEK) Applications:

Suitable for many indoor industrial or manufacturing environments

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DCR	7135	41497	44725	45159	N/A	N/A				

SURFACE TREATMENT**ELECTROLESS NICKEL****DSF 1.4.1****Description:**

Electroless nickel plating (EN) uses a chemical reaction technique to deposit nickel-phosphorous onto pre-treated (etched) metal or plastic substrates. This is a barrier coating, not a sacrificial coating like zinc.

Preferred ASM (DEK) Coating standard:

Niklad ELV 808 or **Niklad ELV 849**(7.5-9% Phosphorous) produces a bright deposit with good wear and corrosion resistance properties, meeting ELV (End of Life Vehicle) and WEEE & RoHS regulations.

For protection, an anti-tarnish treatment is then applied to the surface.

Optional heat treatment (identified by a straw like colour) results in a dramatic increase on hardness to levels similar to those of chromium plate making this for many applications a popular alternative.

Electroless nickel can be applied to a wide range of substrates including, aluminium and aluminium alloys, copper and copper alloys, ferrous and stainless metals, beryllium copper, zinc and titanium.

Deposit Thickness:

Unless otherwise stated in the drawing notes, the MINIMUM deposit thickness for the design must be stated on the drawing using one of the following designations within the Finish area of the drawing frame:

Drawing Frame Finish Designation	Minimum coating thickness on ferrous base (µm)	Minimum coating thickness on aluminium base (µm)
DSF 1.4.1	13	25
DSF 1.4.1_SCN1 (<i>Typical</i>)	5	8
DSF 1.4.1_SCN3	25	50

The thickness should be controlled by using one of the Service Condition Numbers (SCN1 or SCN3), typically SCN1.

Any finish without a suffixed SCN number will be produced against the base DSF 1.4.1 specification.