

Zink-Nickel Coating improves quality

As of April 2010 HANSA-FLEX will change the surface coatings of its fittings from zinc (with chromium(III) passivation) to the qualitatively superior zinc-nickel coating. Zinc-nickel base layers exhibit a much better corrosion resistance than the simple zinc layers (with chromium(III) passivation or A3C chromating).

Even if the standard commercial zinc coatings satisfy all statutory provisions, this type of surface coating still does not fully measure up to the stringent quality requirements set by HANSA-FLEX AG.

Due to the increasing requirements in the field of corrosion resistance the changeover of our surface coatings is a decision for our clients and against the use of conventional chromium(III) coatings.

Specifically for this introduction HANSA-FLEX has prepared a specification, which we have developed over countless tests and in cooperation with our suppliers and manufacturers. In a three-month test phase, several different types of zinc-nickel coatings were tested for resistance to rusting. The freshly coated components underwent the batteries of tests at our cooperation partner, the International Hydraulics Academy in Dresden. To demonstrate rust resistance, components with different coatings were sprayed continuously with a salt mist in a test lasting 720 hours (32 days), as set forth in DIN EN ISO 9227-NS.

We have also developed a lower coefficient of friction that has no negative effects compared with conventional coatings. This makes the assembly of components even more secure. The new zinc-nickel coating has demonstrated its process reliability in all tests, and thus promises an outstanding level of reliability. This represents a significant financial advantage for machine operators, particularly in areas where the components are exposed to the effects of extreme weather conditions, e.g. when used on construction machinery, agricultural implements, or roadbuilding equipment.

Nothing will change for our customers! They will continue to receive the HANSA-FLEX quality they expect. However, it should be noted that all zinc-nickel coated products display a matte grey colouration, instead of the yellowish colouration of chromium VI products or the silver grey colouration of chromium III products. This change is only visual.

Due to the successive phasing in of the zinc-nickel products it is possible that our deliveries contain chromium III as well as zink-nickel coated products. We will have changed our pipe fittings, adapters, hose fittings and flanges by the end of 2010.

Advantages Zinc-Nickel

1. Greatly improved corrosion resistance compared to A3C and Cr(III)
2. No white rust or blooming as known from A3C and Cr(III) components
3. Higher quality appearance
4. Safety in assembly due to the identical coefficient of friction (identical mounting characteristics as A3C and Cr(III) components)
5. Resistance to all conventional hydraulic fluids (identical to A3C and Cr(III))

Areas of Application

The new zinc-nickel coating demonstrates greater process reliability and guarantees reliability across all industries, specifically those industries where corrosion resistance (to fertiliser, salt, etc.) is of great importance, e.g.

- Construction equipment
- Agricultural machinery
- Road building or communal vehicles
- Wind energy, etc.

Technical data

- Corrosion resistance (red rust) min 300h for fittings (DIN EN ISO 9227-NSS)
Corrosion resistance (red rust) min 720h for screw connections and adaptors (DIN EN ISO 9227-NSS)
- Corrosion grade min. K5 (red dust, VDMA 24576)
- Galvanic coating according to DIN 50979
- Thickness $8\mu\text{m} \pm 2\mu\text{m}$
- Nickel share in the zinc nickel base coating ranging from 12% to 15%
- Reduction of friction coefficient through specially developed antifriction layer Chromium(VI)-free according to DIN EN 15205
- Matte grey colouration (VDMA classification F1 / F2)

Conforms with (amongst others)

- EC directive on end-of-life vehicles (ELV) 2000/53/EC
- RoHS 2002/95/EC
- WEEE 2002/96/EC

Background: Implementation of EC directive 2000/53/EC

Chromium(VI) is such a hot subject because of the EC Directive on End-of-life Vehicles. Hexavalent chromium is contained in significant amounts in yellow/black and olive chromating and the coated parts (for example hydraulic fittings, screws, etc.). The directive gives the manufacturer the responsibility of removing vehicle components containing mercury, lead, cadmium or chromium-6 before shredding, incinerating or dumping. Because this requirement can be fully met only with great difficulty, it means that there is an implicit prohibition of these materials in automotive manufacturing. Hydraulic fittings which have yellow and black chromating as protection against corrosion are not allowed in the electrical industry from 2006, nor in the automotive industry from 2007. Both of these surfaces contain hexavalent chromium-6 compounds, and if they are released during the recycling process can have damaging health and environment consequences.