

MARYLAND METRICS

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TECHNICAL INFORMATION and DATA

Surface treatment processes

Coatings and Platings

Process	Description
Hot-dip galvanizing	Products are immersed in molten zinc with a temperature of about 440-470°C. Coating thicknesses 40-80my. Dull and rough finish. Spotting may occur within a fairly short time. Very high protection against corrosion. Distant protection even if coating partially is lacking.
Phosphating	Only slight protection against corrosion. Good undercoat for painting. Grey to grey-black appearance. Improved protection against corrosion by subsequent lubricating.
Black oxidizing	Chemical process, bath temperature approx. 140°C. For decorative purposes, only slightly corrosion-resistant.
Burnishing	Similar process as black oxidizing, however, various shades of colour may be obtained: light, medium, dark, or according to customer's sample.
Thermal post-treatment²⁾ (baking)	All steel components with high tensile strength (over 1000N/mm ²) may be subject to embrittlement (hydrogen embrittlement) due to absorption of hydrogen during pickling or electrolytic treatment. The beneficial effect of a Thermal post-treatment (below annealing temperature) after electroplating is the removal of hydrogen by effusion and / or the irreversible trapping of hydrogen in the steel. With the present state of technical knowledge this process offers good practical results for fasteners smaller than M14. With increasing coating thickness the difficulty of removing hydrogen increases. Thermal post-treatment follows immediately after the electrolytic treatment.
Dacromet	Excellent, non-electrolytic coating process for high-tensile components. The possibility of hydrogen embrittlement is excluded, if the process is carried out correctly. Resistance to corrosion is roughly the same as for electroplating of the same thickness.
Mechanical (zinc) plating	Chemo-mechanical plating process. The degreased parts are placed in a cladding drum with a special mixture of glass pellets and zinc powder. The glass pellets serve as a carrier for the zinc and help the zinc rise to the surface of the work piece, where it will stick due to cold-welding. By correct processing, hydrogen embrittlement can be excluded.
Polyseal Delta Seal	First, a zinc phosphate layer is applied in an ordinary dipping process. Then, an organic protective coating follows which temper-hardens at about 200°C. Finally, a rust inhibitor is applied. This coating can be ordered in various colors and is an excellent corrosion protection. Main field of application is the automotive industry.
Veralisation	A special process of hard nickel plating. Combines protection against abrasion and corrosion.

1) We offer hot dip galvanized hex head screws (ISO 4014/4017, DIN 933/931) in property classes 4.8 and 8.8. The threads are undersized to accept a 6H GO gauge after plating.
A full range of hot-dip galvanized hex structural bolts DIN 7990 and heavy hex bolts for high strength structural bolting DIN 6914 are available from our european stock. Of course, we also offer the matching hot dip galvanized nuts and washers.

2) All our products of property classes 10.9, 12.9 and 45H automatically undergo thermal post-treatment after electroplating (also known as baking or stress relieving).