

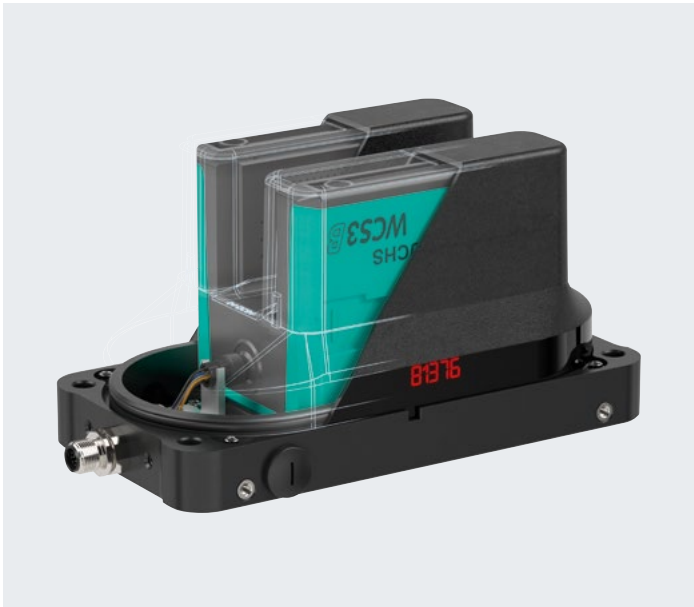
Position Encoding System (WCS) for Absolute Positioning in Galvanic Plants

Position Detection in Extreme Environments with the WCS Outdoor

At a Glance:

- Modular absolute positioning concept comprising a read head, code rail, and mounting system
- Protective housing with IP69 protection for resistance against aggressive substances
- Chemically resistant code rail made from tear-resistant polyester laminate
- Precise position data despite curved paths, ascents, descents, interruptions, and track switches





The Application

At galvanic plants, workpieces (e. g., automotive components or printed circuit boards) are given an electrolyte coating via a highly energy-efficient process. The process is designed to increase the corrosion resistance of the metal surfaces, improve the conductivity of electric contacts, and create a visibly high-quality finish. During the galvanizing process, an automated program customized for the coating type sends the workpieces to multiple immersion baths. Transportation units automatically move the workpieces to the immersion baths, which often contain extremely aggressive solutions. The temperatures in these baths can be extremely high and the ambient atmosphere is often saturated with vapors from the solutions.

The Goal

To guarantee a smooth workflow in the galvanic plant, the workpieces to be coated must be immersed in each immersion bath in the correct order. This process requires reliable positioning of goods, carriers, and galvanic racks, even when tracks are complex and feature curved paths, ascents, descents, and interruptions. Due to the extreme environment, the positioning system must be chemically resistant and highly rugged.

The Solution

Tried and tested over many years, the WCS absolute positioning system comprising a read head and code tape offers the appropriate features for this task. The WCS Outdoor's read head and code tape have been specially developed for use in extreme ambient conditions and are resistant to the aggressive substances typically found in galvanic plants. Based on the detection of coded cutouts, the measuring principle guarantees maximum contamination resistance and thus operational safety. The read head scans the code rail without contact

and wear, making the solution completely maintenance free. In addition, the specially coated plastic code tape is suitable for curved paths, ascents, descents, interruptions, and track switches as required.

The Benefits

The extremely rugged read head of the WCS Outdoor version is suitable for applications in extreme environments in which other positioning systems would reach their performance limits. The translucent housing and degree of protection of up to IP69 provide excellent resistance to contamination and aggressive substances such as acids and alkalis. The wide range of electrical interfaces facilitates integration in any plant. The aluminum profile serves as a mounting system that secures the entire length of the code rail and is particularly suitable for overhang installation.

Technical Features

- Impact-, dust-, and water-jet-resistant outdoor protective housing for extreme conditions
- 180° rotating display shows position values and diagnostics on the device
- Absolute accuracy to 0.8 mm without reference points
- Plastic rail is resistant to acids, alkalis, and aggressive gases
- Integrated interfaces and a wide range of interface modules are available
- Resolution of ± 0.40 mm (1250 pos./m)