

# ELeVEN® LP 350

## Low phosphorus electroless nickel



General Metal Finishing

Electroless nickel

atotech.com

## High hardness and outstanding wear resistance electroless nickel process

# 2-5%

phosphorus incorporation  
with ELeVEN® LP 350



### Low phosphorus electroless nickel innovation

ELeVEN® LP 350 is a low phosphorus electroless nickel process, providing a deposit with a high level of hardness and outstanding wear resistance. The fast plating speed and long bath life ensure cost-effective production. This technology is completely free of metal stabilizers and EDTA and fulfills all ELV, RoHS and WEEE requirements.

Based on the process properties ELeVEN® LP 350 is an excellent combination of high plating efficiency and sustainability, providing an outstanding wear resistant coating for a wide range of industries such as automotive, chemical, molding, consumer electronics and for applications requiring high as-plated hardness.

### Sustainable electroless nickel solutions

The last years have seen a major shift in the global environment due to the impact of industrial processes. The environmental footprint has become more and more important also in the plating industry. The target of Atotech is to create more responsible environmental plating solutions. In order to meet highest industrial production requirements and at the same time provide a sustainable solution, Atotech has developed ELeVEN® LP 350. This low phosphorus electroless nickel process has a unique composition, which is completely free of metal stabilizers. It is therefore a significant milestone in electroless nickel plating, complementing our existing portfolio of sustainable electroless nickel solutions.

### Features and benefits

- Completely free of metal stabilizers
- Fast plating speed leading to excellent productivity
- High process stability and long bath life
- Phosphorus content: 2 - 5%
- High as plated hardness 650 - 750 HV<sub>0,1</sub>
- Outstanding wear resistance
- Compressive internal stress over the bath life

# Sustainable and efficient low phosphorus electroless nickel

# 14-20 $\mu\text{m/h}$

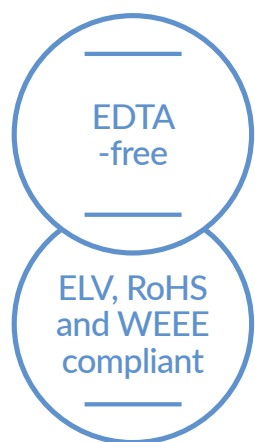
ELeVEN® LP 350 has a fast plating speed

## Process properties

ELeVEN® LP 350 has a fast plating speed of 14-20  $\mu\text{m/h}$  and therefore a high productivity. The bath operates up to 8 MTO and shows excellent stability.

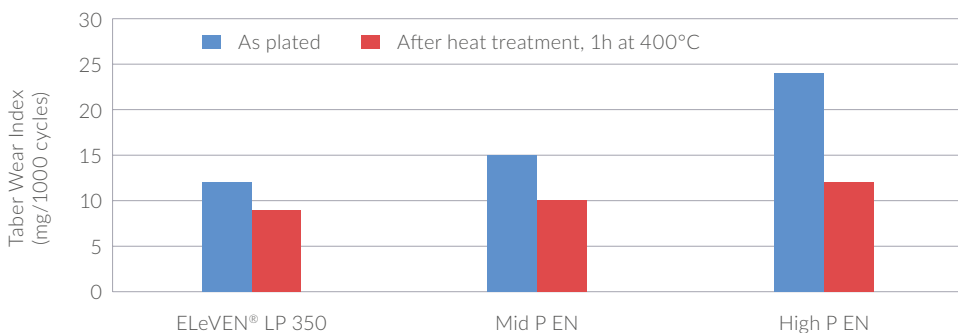
## Deposit properties

ELeVEN® LP 350 offers a deposit with superior hardness and wear resistance. It contains 2 - 5% phosphorus. ELeVEN® LP 350 provides a semi-bright to matt appearance. The deposit shows an excellent corrosion protection performance in alkaline environmental and high solderability. The internal deposit stress remains compressive over the whole bath life.



## ELeVEN® LP 350 wear resistance

Below diagram shows the excellent wear resistance of ELeVEN® LP 350 as plated measured by means of Taber Abraser test.



## ELeVEN® LP 350 hardness

Below diagram illustrates the outstanding hardness of ELeVEN® LP 350 as plated, which can be further increased by use of heat treatment.

