

DynaChrome® Plus

Production system



General metal finishing

Functional chrome

atotech.com

Advanced production system for hard chrome plating of shock absorber rods

The DynaChrome® Plus concept

The DynaChrome® Plus system is a combination of equipment and chemistry that have been specifically tailored to complement each other for best performance. DynaChrome® Plus delivers high productivity, excellent quality and flexibility for the hard chrome plating of shock absorber rods, while also offering environmental, resource and economic benefits.



High productivity, small dimensions

With 3 chrome plating cells, ≈10K litres of plating solution, single flight bar construction and the integrated shielding system the DynaChrome® Plus system can produce over 6 million rods per year. To achieve the same productivity in conventional plating equipment commonly requires much larger lines using double the bath volume, extra rack equipment and spacious rack storage. The bigger size of these plants also means that the extraction system for conventional equipment has to be significantly larger with bigger fan units, more make-up air, exhaust air systems and so on, leading to an increase in equipment costs and energy consumption.



Lower emissions, more environmentally friendly

The DynaChrome® Plus system has several design features to reduce waste generation and use of resources. Among those is the integrated water recycling system whereby a closed loop is made with the scrubber system and rinses. This greatly reduces the input volume of water required to run the system and minimizes the output of water as the rinse water is completely re-used within the system itself.

The DynaChrome® Plus system is completely Pb-free as it uses platinized anodes, not Pb/Sn anodes normally used for conventional systems. This eliminates frequent anode maintenance, eliminates generation of toxic Pb-chromate sludge, requires no dummieing to start up the process and generates no lead waste from used anodes. A double scrubber system is used with DynaChrome® Plus to reduce air emissions and with an optional demister emissions can be reduced even further.

High production capacity of 1,000 rods / hour



Figure 1:
DynaChrome® Plus line
showing housing



Figure 2:
New ion exchange system

Higher selectivity, lower costs

As the DynaChrome® Plus system uses both top and bottom shielding, only the part of the rod that needs to be plated is actually plated. By using bottom shielding as well as top shielding in the DynaChrome® Plus system, the exact region to be plated can be accurately masked off so reducing excess chrome plating by up to 30% and therefore reducing waste and minimizing costs.

Greater flexibility, stepwise investment

As no two production facilities are ever alike, the DynaChrome® Plus system can be designed to suit the layout and restrictions of each particular facility. For a plating facility this means that a DynaChrome® Plus line can be ordered to give a total capacity of 1,000 rods/hour, for up to 20 µm of plated chrome. During the initial phases of production ramp-up when capacity demand is low, the line can be equipped so that it produces only 350 rods/hour. As production demand increases, the DynaChrome capacity can be increased to 700 and 1,000 rods/hour when required. This means that investment costs can be spread over a longer period of time, matching order development and eliminating the need to invest in a full machine right at the beginning. The layout of the line can also be adjusted to suit where the rods will enter and exit the line so that the customer's unique situation can be accommodated.

Improved ion exchanger, reduced waste

Due to the highly efficient DynaChrome® Plus system and greatly reduced generation of metallic contamination, Atotech has developed a new ion exchange system. This new system has enabled the resin volume to be reduced by up to 95% and wastewater associated with regeneration reduced also by up to 70%. The system incorporates new safety features to prevent accidental damage to the system itself and to provide improved safety for staff.

Features and benefits

- Predictable, high quality and high yield production
- Low worker exposure and emissions to the environment
- Minimal water and resource consumption and waste generation
- Versatile for different rod diameters and lengths
- Fully selectable plating area, so less chrome plated
- Plating to size so reducing the need for post-grinding
- Fully integratable with pre- and post-processes
- Highly economic production costs
- Proven technology in use worldwide



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