# Innovation in phosphate-free wire coating

## Beruforge 150

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# New and superior – the phosphate-free coating system Beruforge 150-series

**Tribological conditions in cold massive forming are characterised by high relative speeds between tool and work piece, high surface pressures, as well as considerably enlarged surfaces. Due to frictional and forming processes temperatures of up to 500 °C will occur. These frame conditions require expensive lubricating systems in cold massive forming to prevent direct metal contact between tool and work piece.**

Already in the beginning of the 1930s Singer established the phosphate coating of the semi-finished product in cold massive forming. Still today the “Singer Patent” represents the latest state of technology in cold massive forming. From today’s point of view this process has, however, a lot of disadvantages since it requires a high amount of energy and many chemical substances which have to be duly disposed after use.

Global competition and cost pressure, increasing demands for energy and raw material efficiency in industrial processes as well as strict regulations with regard to environmental protection require alternative manufacturing processes.

Within a joint research project several alternative lubricant systems have been tested. The result of this project was an innovative coating process which is superior to all conventional phosphate-free systems up to now – the single-layer system **Beruforge 150-series.**

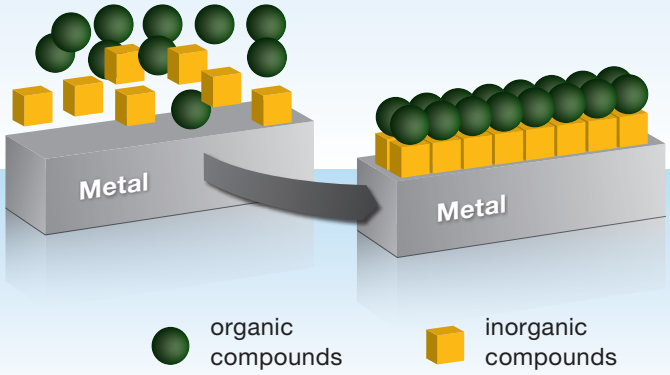
# Energy and raw material efficient wire drawing by the single-layer system Beruforge 150-series

## Structure of a conventional wire coating

Classical, widely used multiple-layer system


## Basic principle of wire processing with the single-layer system Beruforge 150-series

Starting material: non phosphatised semi-finished products. In the final drawing process only **one** layer is applied which acts as conversion layer.




**With this innovative product series phosphatic coatings are no longer required; this series offers considerable advantages in production:**

- Elimination of the lubricant carrier layer results in lower drag-in of solid substances during the forming process and thus in improved cleanliness of the machine
- Extended lifetime of the forming oils
- Up to 20 % longer lifetime of the forming tools
- Easy handling by excellent adhesion and quick drying
- Easy application by immersion or in the final drawing step
- Excellent long-life corrosion protection by lubricant matrix with mixture of organic and inorganic components
- Suitable for all non-phosphate coated wire surfaces and qualities as well as for stainless materials and aluminium surfaces
- Lubricant residues can be easily removed with water after the forming process

## Lubrication Solutions for Industry

With 180 years of experience, BECHEM is one of the leading manufacturers of premium quality special lubricants and metal working fluids.

Close cooperation with research institutes, industry partners and product users as well as the knowledge, skills and major commitment by our staff are guarantees of new and innovative high performance lubricants, which contribute to the success of our customers at home and abroad.

A powerful network of distributors and several national and international production sites ensure our products are readily available worldwide.

**Tomorrow's technologies. Today.**

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