



**We can do
precision!**



Resource- and material-saving

Sustainability in production is becoming increasingly important. Resource saving in the production of components is the top priority. What is not consumed does not require resources. In terms of material efficiency, cold forming is much better suited to meeting sustainability goals than other production processes.

The advantages of cold forming are obvious:

- High production speed leads to economies of scale for large quantities
- Near-net-shape forming keeps the cost of post-processing low, as the desired final shape is almost achieved in the production process

- Saving material and avoiding scrap
- Improvement of the mechanical properties of parts, as a homogenous material structure and an uninterrupted fibre flow are maintained in the product
- Better strength-to-weight ratio
- Elimination of heat treatment processes thanks to a smart process design in combination with the appropriate choice of materials

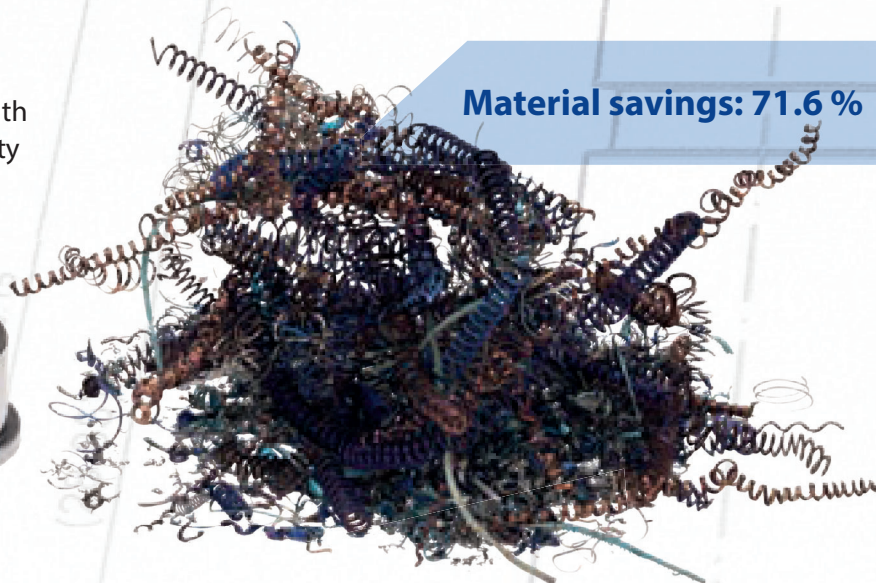
Precision in millions

In the automotive industry, suppliers are faced with very high requirements: Precision, high repeatability and tight tolerances.

MN Kaltformteile is mastering these requirements and supplies the bushing as sole supplier in millions of units.

Bushing

Material: C10C



From turned part to cold formed part

Originally, the axle was a machined part, made from stainless steel. For reasons of cost optimisation, alternatives were required.

MN Kaltformteile was able to convince with expertise and know-how. Today, the axle is made from aluminium and is not only much cheaper, but also considerably lighter in weight.

Axle

Material: Aluminium



Cost optimisation

**Already with the first drawing,
75% of the later product costs
are determined**

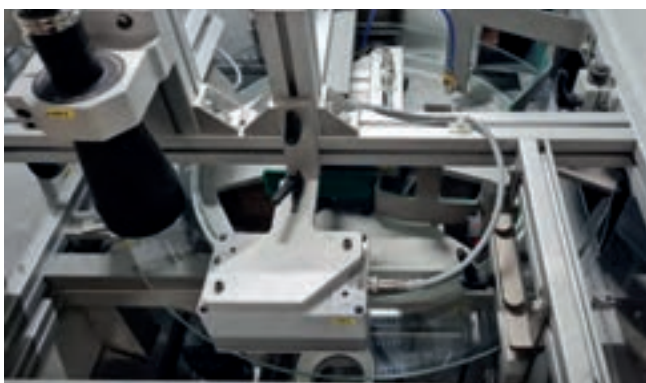
The experts at MN Kaltformteile help to reveal cost-saving potentials already in the early stages of the product development. In doing so, they use more than 50 years of product understanding for different product disciplines to take into account the essential influencing variables - technically as well as commercially.

From the first concepts, starting with metallurgy, MN Kaltformteile assists in the entire product engineering process as a competent development partner at the side of its customers.

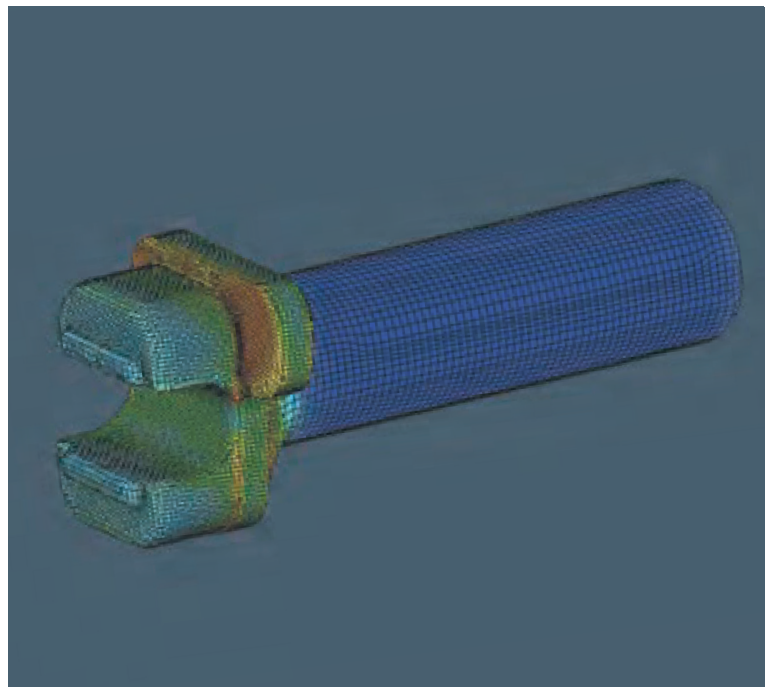
Opto-electronic sorting

Quality assurance is a central aspect in the manufacturing of products supplied to the automotive industry. 0 ppm strategies and 100% control are the order of the day. In order to ensure the high quality standard, MN Kaltformteile uses, among other things, opto-electronic sorting.

In large numbers, finished parts are fed into inspection systems where they are selected in milliseconds by means of a target-performance comparison based on predefined dimensional characteristics and, if necessary, are sorted out.



Glass rotary table: Dimensional inspection with multiple cameras from above and below.



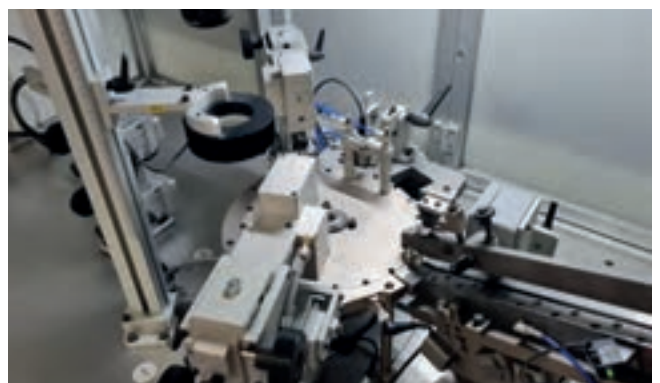
Before series production, the forming process is optimised using finite element simulations.



**Material
savings:
84.95 %**

Asymmetric formed part

- Material: Brass
- Groove on the lower area of the part produced by machining



Rotary table: Hanging parts are checked laterally. 360 degree and eddy current tests are possible.



**Material
savings:
68.5 %**

Sensor piston rod

- Material: 1.4567
- Machined finish



**Material
savings:
50 %**

Sealing plug

- Material: Aluminium



**Material
savings:
77 %**

Profile formed part

- Material: C10C
- Made from wire



**Material
savings:
80 %**

Aluminium blank

- Material: Aluminium
- Initial stage for complex machining processes



**Material
savings:
71.5 %**

Bearing bolt mechatronics

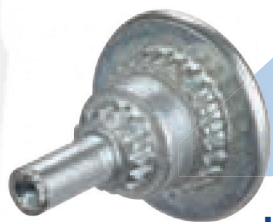
- Material: C10C
- Coating: Zn/Ni



**Material
savings:
63 %**

Bearing bushing for mechatronics

- Material: C10C
- Surface: Flocked
- Tolerance compensation and noise damping



**Material
savings:
79 %**

Knurled bolt

- Material: C10C
- Single operation with pressed knurl



**Material
savings:
48.5 %**

M6 internal thread

- Material: C10C
- Pressed knurl



**Material
savings:
90.3 %**

Gear shafts with internal drive

- Material: 33B2
- Gear ring and internal drive produced in a single operation



Material savings:
83.5 %

Bearing sleeve mechatronics

- Material: C10C



Material savings:
77 %

Sleeve

- Material: C10C
- Coating: Zn/Ni



Material savings:
63 %

Locking bolt

- Material: C10C
- Single operation

Kanten durch trowalisieren gebrochen
Daraus entstehende "Aufwulstungen"
innerhalb der Toleranz zulässig



Material savings:
93.7 %

Ratchet

Reduction of complexity
"make 1 out of 2"

- Material: 16MnCr5
- Finishing: Plastic moulding for wear protection



Material savings:
56 %

Contact rivet

- Material: Brass
- Finishing: Silver-plated (not shown)



Material savings:
62 %

Latching bolt

- Material: C10C
- Machined cone



Material savings:
82.5 %

Profile bolt

- Material: C10C
- Single operation



Material savings:
78 %

Eccentric bolt with internal drive

- Material: 1.4016



Material savings:
63 %

Electronics plug

- Material: Copper
- Coating: Silver-plated or tin-plated



A traditional company on its way into the future

When the company „Märkische Nietenfabrik Trappe & Hohage“ was founded in Altena in 1899, it was not foreseeable that it would become a powerful, innovative and globally active family business in more than 120 years. Today, the name MN Kaltformteile stands for more than 50 years of experience in cold forging and for being a reliable partner to the industry.

The facts and figures speak for themselves:

- Family-owned
- 95 employees
- 15,000 sqm production area
- 20,000 sqm reserve space for future company development
- High readiness to invest
- Stable and sustainable growth
- Export ratio: Approx. 51 %
- Subsidiary GMAK, Wuppertal
- In-house toolmaking
- CNC-manufactured prototypes from original materials
- 42 multi-stage presses (up to 6-stages)
- 16 one-blow and double-blow presses
- 15 machines for metal-cutting finishing
- Dimensional range: Wire from 0.9 - 24 mm Ø
- Material: Quality steels up to stainless and rust-resistant, various aluminium alloys, brass, bronze, copper, nickel, inconell, incoloy



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