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Cold forging **2016**



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OUR PARTNERS:



DECATHLON



OUR HISTORY

OUR COMPANY

WHAT IS COLD FORGING

ADVANTAGES OF COLD FORGING

OUR PRODUCTION CAPACITY

WHAT ELSE CAN WE DO

PRODUCT EXAMPLES



Milestones of the Unior corporation

From Styria to the world

On the outskirts of the Pohorje Mountains, the first ironworks (foundries) were established in the 18th century. They operated as larger forges, in which land and tradesmen's tools were fashioned by hand.

Infinite enthusiasm gives us the strength to reach milestones

Through permanent development while realising the necessity of changes and a competitive advantage we are consistently taking on new challenges with regard to all activities of the company thus ensuring successful operations.



In 1919 the Štajerska železindustrijska družba (Styrian Iron Industry Company) forging plant, with the shortened name Štajerska Zreče, was established. It produced forged hand tools for farming, forestry and various other trades.



In 1950 the plant, burned down during the war and partially renovated in the years following the war and bearing the new name of Tovarna kovanega orodja Zreče (TKO) came under state ownership. New capacities (tool shop and hand tools mechanical processing plant) comprised the basis for developing two production lines: hand tools and drop forgings.



In the 1970s the plant equipped with a new development strategy also obtained a new name: Unior, tovarna kovanega orodja Zreče. The new name was formed from the words "Univerzalno Orodje" (Universal Tools), by which the company had been known for a long time.



In the mid-1970s Unior began building the Rogla climatic health resort and Olympic centre on Pohorje, and a few years later construction of the Terme Zreče spa commenced and with it, the Tourism Programme.



In 1997 this successful Slovenian company with stable international partnerships was transformed into the UNIOR, d. d. joint stock company. Already at that time, the company had been operating in accordance with ISO 9001 quality standards.



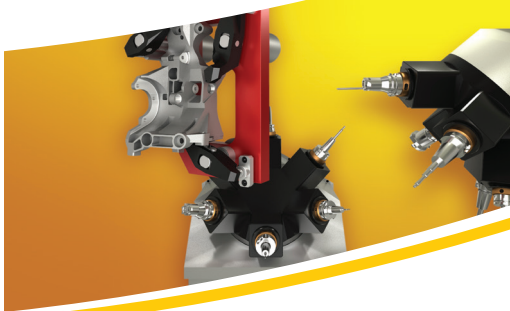
By the 1980s Unior had established its name as an important partner of the European automotive industry, namely as one of the largest European producers of light forgings and as one of the largest European producers of connecting rods for petrol engines. Initial development was enabled by a contract with the Renault concern, on the basis of which a joint-venture plant for the production of forgings was built in Zreče. At the same time, Unior developed its production of homokinetic joints and machine tools, initially intended for the company's own needs.

Unior Joint-Stock Company is today one of the largest and most important Slovenian exporters. With its five production segments company follows the tradition of a high quality and innovation. Committed to high utilization of own capacities, Unior enhances the brand awareness through more than 2400 employers and 32 group companies around the world.



2016

A COMPLETE SOLUTION - A COMPLETE LIFE CIRCLE



FORGING PARTS AND SINTER

By drop forging steel and machining, we make forging parts for control mechanisms and gearboxes, supporting parts of chassis, components for drive shafts and sinter forging parts for the most renowned European and global makers of vehicles: VW, Audi, Renault, Dacia, BMW, ZF Lemförder & ZF Lenksysteme, Jtekt, GKN, Arvin Meritor, BPW, Schäffler KG, Betek and Cimos. Various certificates, tests and awards for excellence confirm the quality of forging parts made in Unior.

SPECIAL MACHINES

Unior mechanical equipment provides comprehensive solutions, ranging from the concept stage to the finished product. Besides specific CNC machine tools for the serial working of aluminium castings or forging parts, Unior also offers flexible production cells, machines for deep hole drilling, for working ends and for working chassis parts, machines with a rotary table and special purpose machines. Unior is a supplier of machines for renowned car manufacturers such as VW, BMW, Audi, Daimler etc.



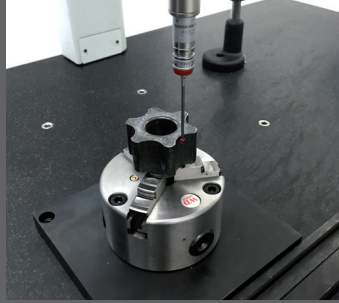
TOURISM

Unior, which operates in the shelter of the Pohorje mountain range, surrounded by an attractive landscape, is developing two interrelated tourist centres. The Rogla climatic health resort, Olympic centre and winter sports centre is especially interesting for professional athletes and recreational athletes, while the Terme Zreče spa is ideal for those seeking health and wellbeing. Both connected health resorts with their modern capabilities are an excellent choice for family holidays, health rehabilitation and preparation for top athletes.

www.rogla.eu | www.term-zrece.eu

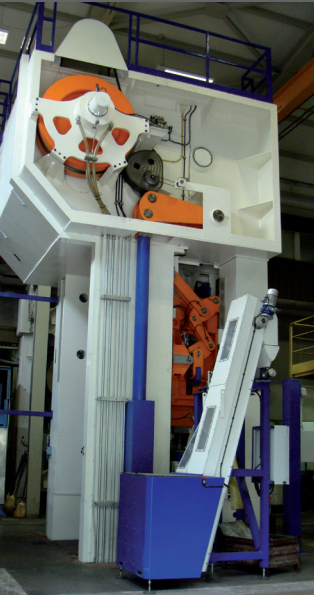
HAND TOOLS

The development of Unior hand tools constantly follows the requirements of professional and amateur craftsmen all over the world. Top quality materials and original design solutions are the basis of the extreme practicality, effectiveness and long service life of more than 5,500 hand tools. The availability of tools is ensured by a multi branch distribution network. With its cold forged products, Unior is an important supplier of tools for the European industry.



 **UNIOR[®]**
Cold forging

#WorldOfUnior



Unior is company with hundred years of forging tradition. Thru century we constantly improve our technology and build our know how. With constant investment into new technologies and our knowledge we manage to position our company amongst one of Europe's leading cold forged parts suppliers.

Unior offers wide range of products to very demanding costumers in automotive industry, hydraulic industry, producers of heavy construction and agriculture machinery and other customers who need innovative solutions for production of top quality products.

WHAT IS COLD FORGING?

Cold forging is a metal forming process where a slug or blank is deformed at (or at near) room temperature. Cold forged parts can be produced using one or more single station vertical mechanical or hydraulic presses, or automated multi-station cold forming machines where the pre-formed part is transferred from one station to the next at high speed with each station performing a specific cold forming process. Cold forging is a reliable and cost efficient process because it can be used to produce parts of superior mechanical properties without (or minimum) waste of material. Cold forging can be very efficient for mass production.

ADVANTAGES OF COLD FORGING

SAVINGS IN MATERIAL AND FINAL MACHINING

1

HIGH PRODUCTIVITY

2

EXCELLENT DIMENSIONAL ACCURACY AND SURFACE QUALITY OF COLD FORGED PARTS

3

IMPROVEMENT OF MECHANICAL PROPERTIES OF COLD FORGED PARTS

4

Cold forging has many advantages over hot forging! The most obvious are achieving narrower tolerances and forging of complex symmetrical shapes. With cold forging procedure we can in some cases make parts that don't need additional machining. In most cases we can forge certain characteristics and measurements to finished tolerances, which means that machining is reduced to minimum. Cold forging also achieves very good surfaces compared to hot forging.

Advantage of cold forging over machining reflects mostly in price and inner structure of the part. With machining we cut inner fibers in part, but with cold forging we only bent them, so cold forged part is much stronger and durable than machined part. This characteristic is important when we produce parts that will be built into machines that work under a lot of stress and are subject to a lot of wear.

OUR PRODUCTION CAPACITY



Outer diameter

90mm

Maximum outer diameter of forging is **90 mm**, inner diameter depends of shape. Only for round parts made of steel, dependent on the forming degree, sequence of operations in addition to the material and temperature.



Length

220mm

Maximum product length is **220 mm** and depends of product shape.



Weight

0,01kg-7kg

Maximum weight is around **7kg**, and depends of product shape.

WHAT ELSE CAN WE DO?

MECHANICAL MACHINING (TURNING, MILLING, DRILLING, BROACHING, GRINDING, ETC.)

1

SURFACE PROTECTION (ZINC PLATING, CHROME PLATING, PHOSPHATING, PAINTING, ETC.)

2

HEAT TREATMENT (ANNEALING, TEMPERING, ETC.)

3

PRODUCT EXAMPLES

HAND TOOLS



PRODUCTS FOR HYDRAULIC COMPONENTS



VARIOUS CAR PARTS AND OTHER PRODUCTS

