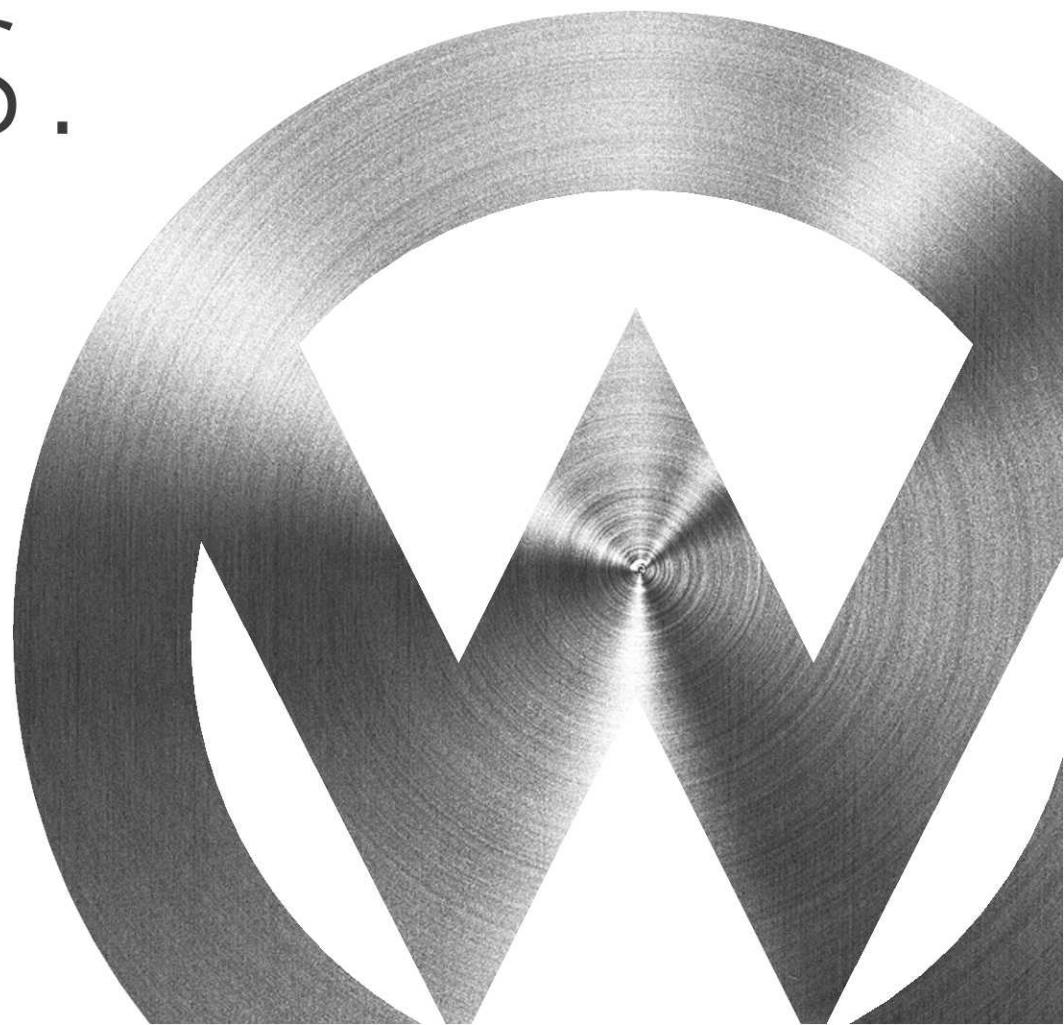


PERFECTION IN ROLLS.



ESW

EISENWERK SULZAU-WERFEN
R. & E. WEINBERGER AG



"Expert competence, technical reliability and the superb quality of our products have always had a special status and are the basis for the continuing positive development of the company."

Rudolf Weinberger, Chairman of the Supervisory Board

EISENWERK SULZAU-WERFEN
R. & E. WEINBERGER AG



"From ESW's specific understanding of quality, efficiency and entrepreneurial spirit we have evolved an advantage over our competitors. Our enthusiasm, our ambitiousness and our skills are oriented towards producing rolls as well as giving our clients the best possible support in the challenges they face. Success is measured in the trust placed in us by our clients from all over the world."

Georg Hemetsberger, Chairman of the Management Board and CEO
Bernhard Wicho, Member of the Management Board and CTO



INNOVATION QUALITY RESPONSIBILITY

ESW is nowadays one of the world's leading producers of rolls for shaping steel. The origins go back to the year 1770. The company has been owned by the Weinberger Family for almost 120 years.



Long-term planning over generations, courage, resoluteness and excellent employees provide the basis for us to continue in future with innovative procedures and products in order to meet the requirements of our clients.

Knowledge about materials and their processing forms the core competence of ESW. Through intensive research and development, certified quality management and continuous expansion of the plants, we fulfil our promise to our clients to provide perfection in rolls. Our recognized efficiency in the use of energy and raw materials, ongoing optimization of all processes, constant training, as well as health and leisure programmes are standards nowadays taken for granted in the company.



High, awe-inspiring mountains, extensive forests, the outstanding castle of the former regional ruling princes – this unique interplay of countryside and history is understandably a highly sought-after holiday destination. ESW is located in a region characteristic of the province of Salzburg and of Austria.

At the same time the location has excellent international transportation connections. Very close to the ESW plant is the Tauern motorway which crosses the Alps and is a European transport axis with a direct link to important shipping ports. The airport is in the nearby city of Salzburg, and international rail connections are also available. Acquisition, delivery logistics and world-wide customer support can thereby be achieved with extreme efficiency.



THE 5 STAGES IN MANUFACTURING A ROLL



EISENWERK SULZAU-WERFEN
R. & E. WEINBERGER AG



PREPARATION



CASTING



HEAT TREATMENT



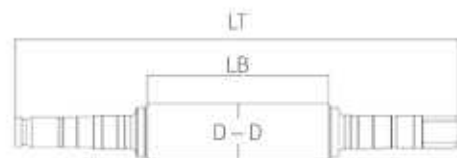
MECHANICAL PROCESSING



FINAL INSPECTION



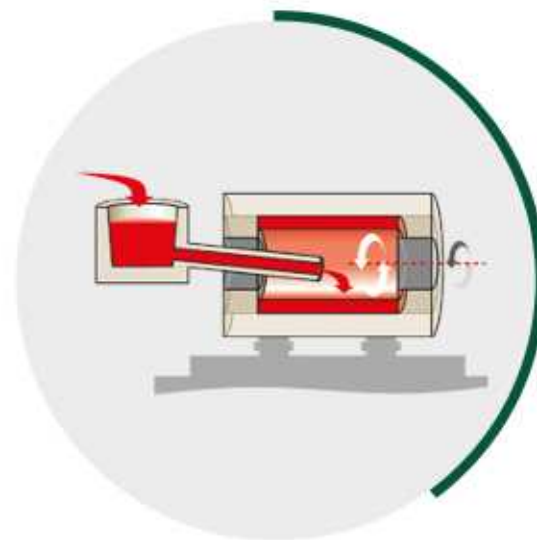
The production of the roll:



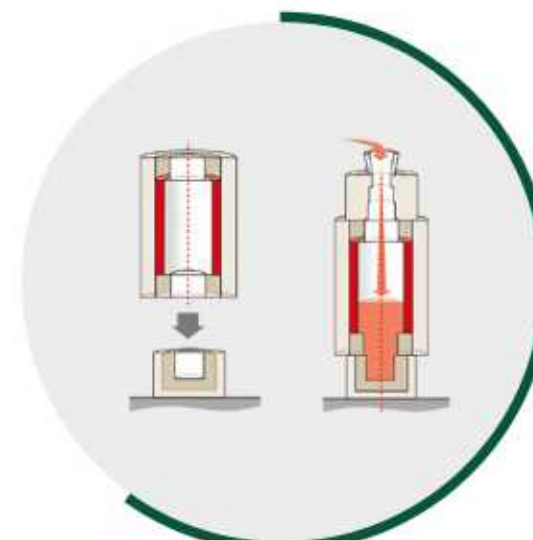
Planned quality in all stages of production and processing guarantees an excellent product.



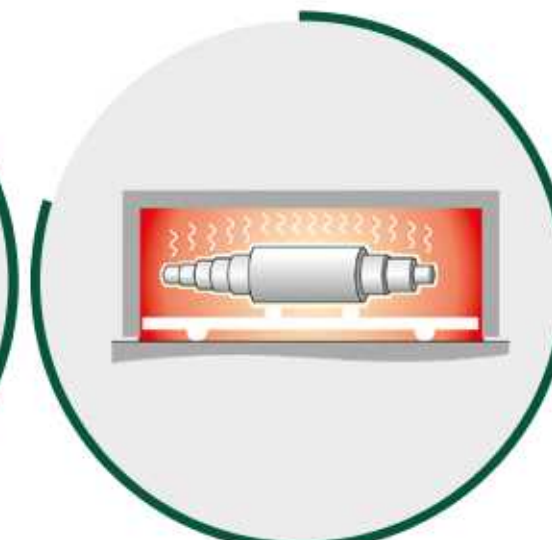
Steel and roll scrap, pig iron and alloys are fused in five induction furnaces with a capacity of between 3 and 24 tonnes.



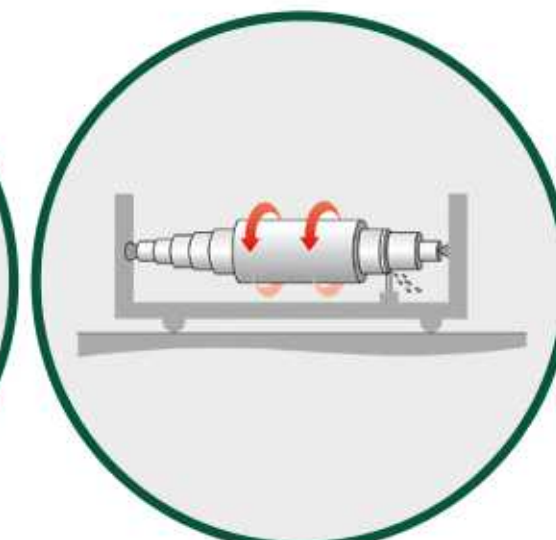
In horizontal spin casting the highly alloyed, liquid roll shell iron is poured horizontally into a revolving forged steel mould.



The core is cast in the solidified roll shell. This later forms the bearing area and the driving connection. The gross weight of a roll can amount to as much as 60 tonnes; a finished processed roll weighs up to 42 tonnes.



The duration and course of the heat treatment are decisive in ensuring that the finished roll has exactly the material qualities as required in the client's rolling mill. Depending on the type of the roll, heat treatment can last up to six weeks.



Rolls produced by ESW are up to 9 metres long and their diameter can amount to 1,500 mm. The rolls are given their final measurements and their specific surface through turning, milling and grinding in mechanical processing. Measurement accuracy of the finished rolls is tested to 1/1000 mm.



PRECISE FINISHING IN MICROMETRES

The length, diameter and composition of ESW rolls are finished individually according to the client's requirements. Applying the expertise built-up over decades, using innovative procedures and reliable IT-supported processes guarantees that each stage of production runs precisely according to the defined specifications.

Leader in technology and innovation

Innovation Prize of *Land Salzburg* for outstanding work in research and development (VIS patent for roll material).

1998

Environmental Prize of Austrian Industry for the construction of the foundry dust-extraction plant with a volume flow of 340,000 m³/hour.

2002

Austrian Export Prize for outstanding success on foreign markets, awarded by the Chamber of Commerce and the Federal Ministry of Economic Affairs.

2005

2005 best family-owned company in Salzburg. Distinction awarded by *Land Salzburg*.

2006

Award for energy efficiency. Having been nominated as Factory of the Year in 2012, ESW was awarded the Special Prize for Energy and Environmental Management.

2011

Salzburg Health Prize in the category of companies with over 100 employees for outstanding achievements in the sphere of operational health promotion.

2012

Rudolf Weinberger, Chairman of the Board of Directors, was awarded the Salzburg Business Prize for his life's work, by *Land Salzburg* and the Salzburg Chamber of Commerce, represented by Governor Dr Wilfried Haslauer.

2014

ESW was awarded the title of "Hidden Champion". The prize was launched by the Austrian Chamber of Commerce in order to pay tribute to small and intermediate-sized companies that are particularly successful in exporting their products.

2016



Precise technical procedures and environmental protection

ESW's prime position and the related expectations on the market are the result of the continuous optimisation of all stages and processes in ESW. They comprise preliminary consultation on the application, the choice of the material, the production process, as well as after-sales care with performance follow-up in daily operation of the rolls. The ISO 9001 certification ensures that quality management and quality assurance are verifiably guaranteed.

Through consistent recycling, valuable raw materials are returned to the processing flow, and non-usable residual materials are minimized. Extensive filter plants ensure a high degree of purification of exhaust fumes; warmth from the production process provides the energy with which we heat all buildings in the plant and several private homes in the neighbourhood. All measures for conserving resources are binding and permanently established in our ISO 14001 environmental certification.

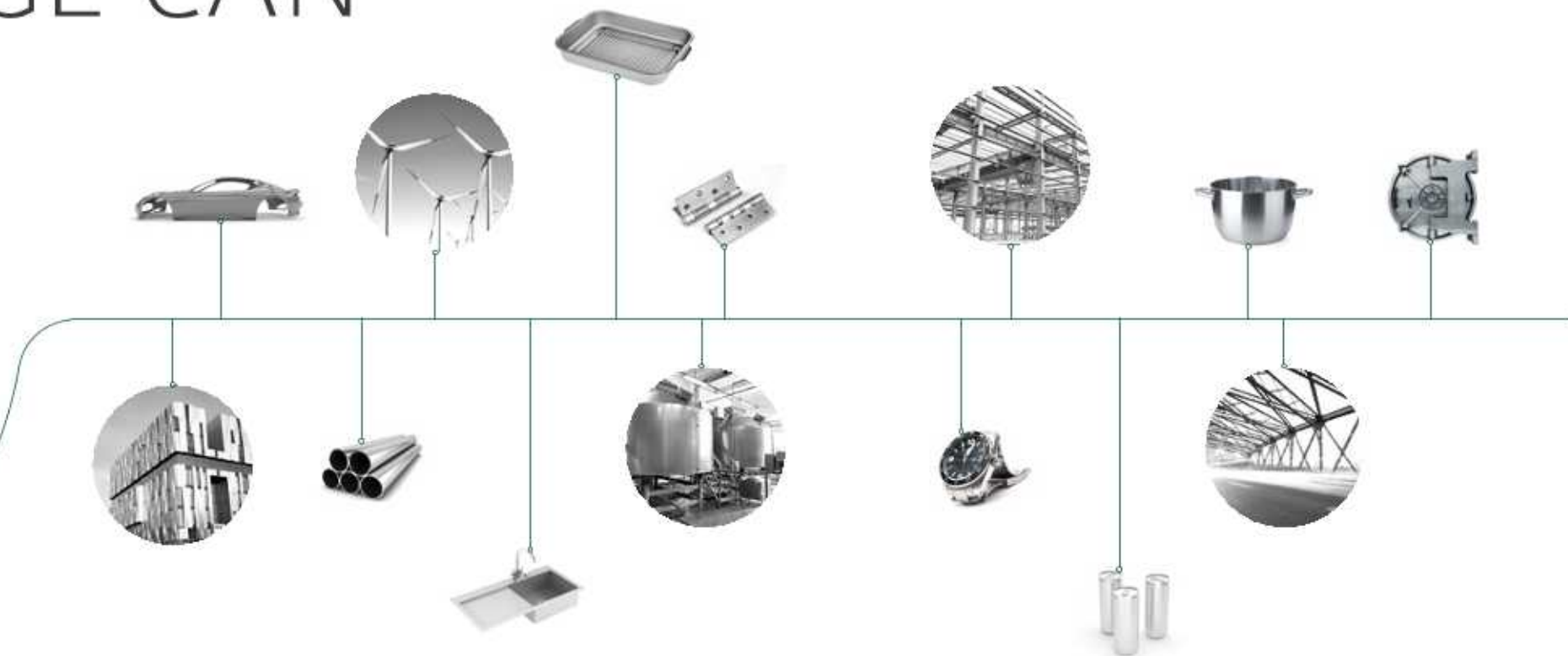
OUR TRADITION: SHAPING THE FUTURE



The quality and performance of ESW rolls is determined above all through the alloys and their qualities. Therefore research and development, together with the production, form the core competence of ESW. This knowledge and long-standing experience are the basis for the new and further development of our products. Using our intuition and enthusiasm, and together with our clients we are thus able to overcome even the most difficult tasks, so that the seemingly impossible becomes possible.

We pass on our expertise and our traditions from generation to generation: in our in-house teaching unit with the most up-to-date training machines we offer young people a great variety of training programmes for professions such as casting or turning technician, mechatronics engineer, metal-worker and electrician, as well as business studies. Thanks to our cooperation with schools in the surrounding area our apprentices can combine their training with studying for the final school qualification (*Matura*).

FROM CAR BODY SHEET TO BEVERAGE CAN



Metals go through many production processes after first being gained from ore until they form the final product.

ESW rolls are used at a relatively early stage of the process, when metal blocks, so-called slabs up to 30 cm thick, are rolled in rolling mills to sheet metal. The slabs are hot from casting or they are heated before rolling to a temperature up to 1,250°C. After several rolling procedures the strips are then only a few millimetres thick and are delivered to production companies as plate, strip or rolled up as coils.

Office furniture, car doors or beverage cans – ESW rolls are involved in the manufacturing of many products used daily by millions of people throughout the world.

PHILOSOPHY OF COOPERATION



As a family-owned company ESW lives through the commitment and team spirit of its staff. The historic mining tradition associated with the location and the company has created a unique philosophy, which is the basis of many innovations of ESW. Many employees come from families who have worked for the company for generations.

We offer young people attractive training programmes in highly specialized professions so that they can carry our strengths into the future. Social welfare, leisure programmes and special bonuses also ensure additional motivation. We encourage young, talented persons who show potential to engage in specialist educational and university studies.

ESW WORLDWIDE

High requirements in rolling mills demand smooth organisational and technical processes. As one of the leading producers of rolls and a long-standing partner of our clients, we feel responsible for supporting their projects and targets with our experience and expertise.

The basis for this is the proximity to our clients and their short- and long-term requirements. We pay great attention to all-round client support which extends as far as the operational use of our rolls, so that where needed we can offer assistance. Besides our headquarters in Tenneck and our subsidiary MCC in Pittsburgh, Pennsylvania, we maintain a close network of competent contacts available throughout the world.





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