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A subsidiary of the Indian
company Sundram Fasteners Ltd.

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PEINER Umformtechnik

Experiences and perspectives

PEINER Umformtechnik

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PEINER Umformtechnik is a subsidiary of the Indian company Sundram Fasteners Limited. Sundram was founded in 1966 and is part of theTVS Group, one of the largest suppliers to the automobile industry in India. Sundram has eight production facilities in India, mainly in the south, and subsidiaries in China, Germany, Great Britain and Malaysia.

PEINER Umformtechnik is a highly qualified manufacturer of mechanical fasteners and forged components, including finishing to customer specifications. Our 320 employees at our production facility in Peine, Germany design products and develop cost-effective manufacturing processes to meet our customers needs. For more than 80 years, we have been a development partner of leading international automobile manufacturers and major system suppliers for the following products:

- Fasteners for wind turbines
- Fasteners for the automobile industry
- High strength bolt assemblies for steel constructions
- High strength screws and bolts for machines, plant and steel constructions
- Special bolts and forged components for custom applications

As a supplier of bolts and forged components, PEINER Umformtechnik has made major investments in innovative manufacturing technologies, the latest organisational structures and systematic and comprehensive employee training and retraining.The technical challenges in the metal forging industry are certain to increase further in the future, accompanied with expanding business opportunities. PEINER Umformtechnik is well prepared to take on new challenges and make best use of the new technologies.

Overview of the technologies
For metal forming, PEINER Umformtechnik uses two different production methods, cold and hot forging.Technical and economical factors influence the choice of the appropriate method. Production takes place on modern multi-stage presses. High performance computer controlled machines are used for each stage of the mechanical processing. Hardening of the products takes place in modern heat treating furnaces.

Surface coatings to protect against corrosion is carried out for PEINER Umformtechnik by service companies who are specialized in this field.

Certification
Our quality assurance system is certified to DIN ISO 9001 and ISO/TS 16949. We are approved by theTÜV (GermanTechnical Monitoring Association) to AD-W0/TRD 100 for low temperature high strength and heat resistant materials too. Our environmental management is certified to ISO 14001.

Design service
PEINER Umformtechnik provides its customers with technical application and metal forming know-how during the product development phase, including advice on handling and final assembly.This ensures the most economical approach to achieving the required product quality and minimizing the overall cost of the fastening. We keep ahead of the latest technical developments as a result of our participation in research and development programs at higher education institutes and universities.

Application engineering, technical support, development and design
A lot of experience is required to design high strength fasteners. Our application and project engineers plan, develop and implement the best solutions from the functional and manufacturing viewpoints in close cooperation with our customers' design departments.The cooperation covers all aspects of the fasteners and aims to reduce costs.Together with our own tool production facilities, our design and development departments routinely take on challenging tasks, including the modification and further development of existing mass produced components.

All stages of development – from the initial design to technical drawings of mass produced parts, tool design and manufacture, initial production samples and inspection through to mass production - are handled by highly qualified specialists using the latest technical systems.

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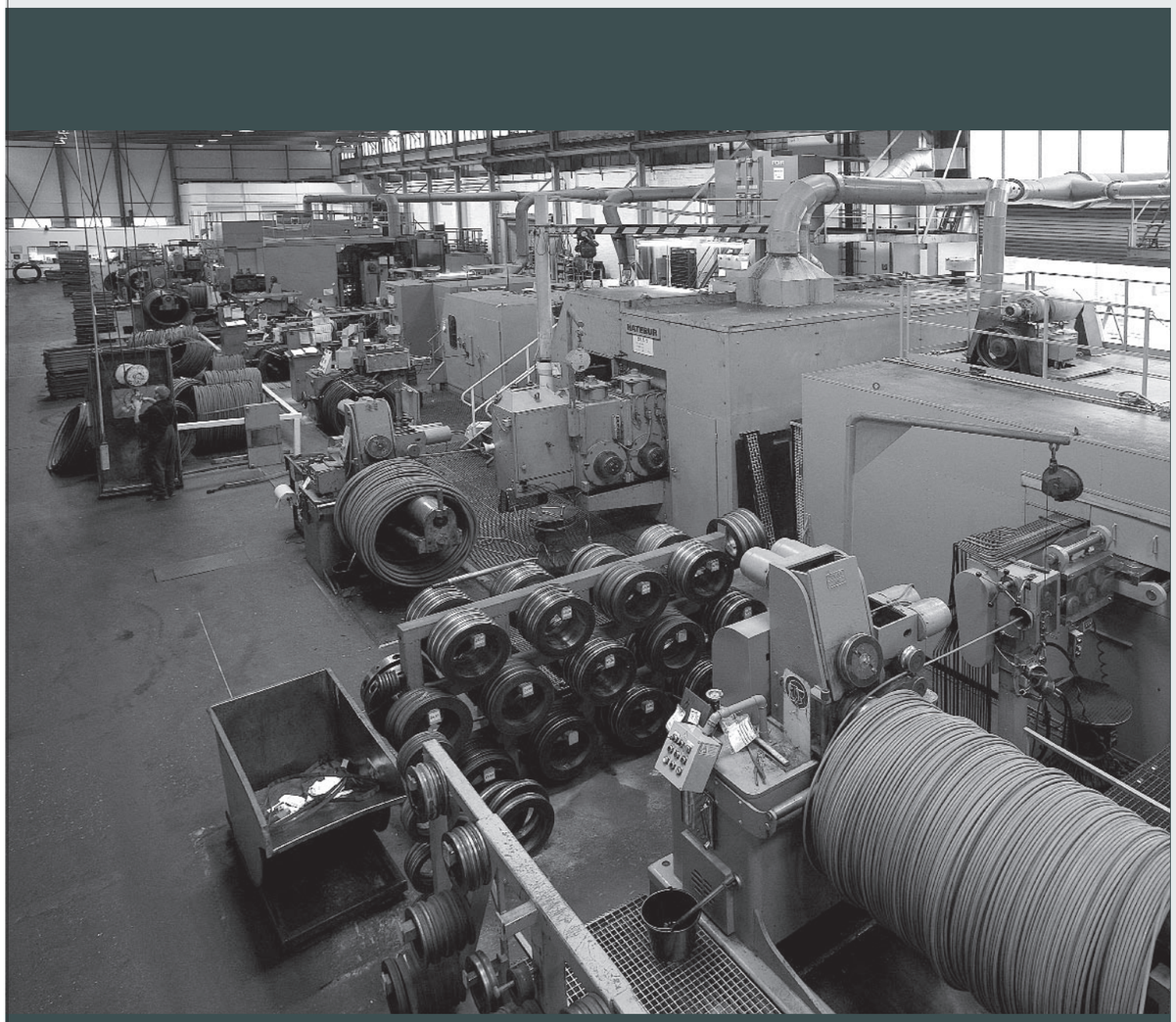
Cold and hot forging
The choice of the appropriate manufacturing methods is influenced by technical and economical considerations. Cold forging is mainly used for large scale production, a small to medium compression set and component dimensions of up to M33. Hot forging allows the production of larger components and more complicated shapes with a high compression set. It is also economical for smaller productions runs due to the lower tooling and setting up costs. We use both manufacturing methods and can thus provide our customers with the best technical approach and the lowest possible manufacturing costs for a wide range of products.

Our production equipment is state of the art and we use the latest generation of multi-stage cold and hot presses.



Mechanical processing
The threads are formed without cutting using rolling mills with flat or cylindrical dies or three point rolling mills.
Internal threads for nuts are manufactured with thread cutting machines.

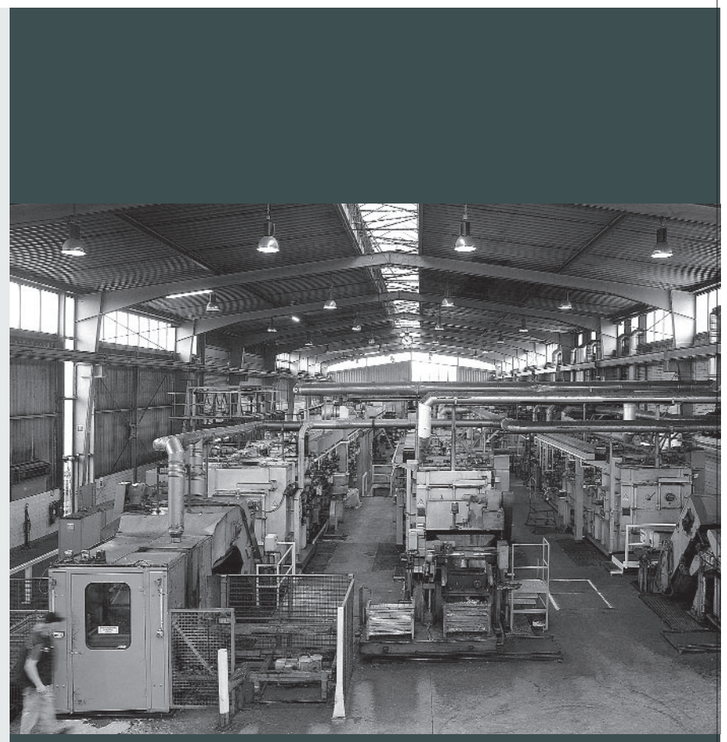
After forging, special bolts and forged parts are finished using machining centres if they to meet special requirements for shape and tolerance.

Heat treatment
Heat treatment is used to give the material special properties such as toughness, tensile strength and surface hardness. Quenching and tempering at a carefully controlled temperature, is used to give the fasteners and forged components the optimum mechanical characteristics. This takes place in process-stable tempering furnaces using the latest heat treatment technology in conjunction with computer-based process control and monitoring equipment.

Quality assurance
Quality assurance is more than just quality control. Quality must be developed, planned, designed, produced and sold. The steps we take are designed to meet the requirements and expectations of our customers.
The quality assurance system at PEINER Umformtechnik follows the guidelines of German and international standards in accordance with the customers requirements. The computer based QA system is documented in comprehensive testing plans and a quality assurance protocol according to ISO 9001 and ISO/TS 16949.

Our quality assurance department has a laboratory for all relevant test methods. This includes mechanical and technical tests (e.g. tension and compression tests, Charpy impact tests, hardness tests, determination of the coefficient of friction), and non-destructive tests (e.g. magnetic crack testing, metallography and emission spectroscopy).

Our laboratory is approved to ISO/EC 17025 and in addition to producing test certificates according to EN 10204 carries out comprehensive technical analyses and specialist reports.



PEINER Umformtechnik

Special components for steel and bridge construction.
In addition to special components to customer specifications, PEINER high strength screw fasteners from our high strength manufacturing program (strength class 8.8, 10.9 an 12.9) are used for a wide range of applications in steel construction and bridges.

Products with the Peiner label have been a sign of quality for demanding architects and engineers for more than 50 years.They have been used in temporary bridges over the Schelde in Holland and to refurbish numerous bridges over the Donau, Rhein and Weichsel. In addition bolts and fasteners from Peiner have been used for numerous new bridges with exceptional structural requirements, for example bridges over the Belt, motorway and railway bridges in Germany and Europe and the largest bridge in Greece over the Peloppones (Harilaos, Trikoupus Bridge). One of the most spectacular projects was the first bridge over the Bosporus in Istanbul using special bolts and fasteners from Peiner.

Our service department provides technical advice for dimensioning, design and assembly and carries out seminars for planners, designers and assembly personnel.

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