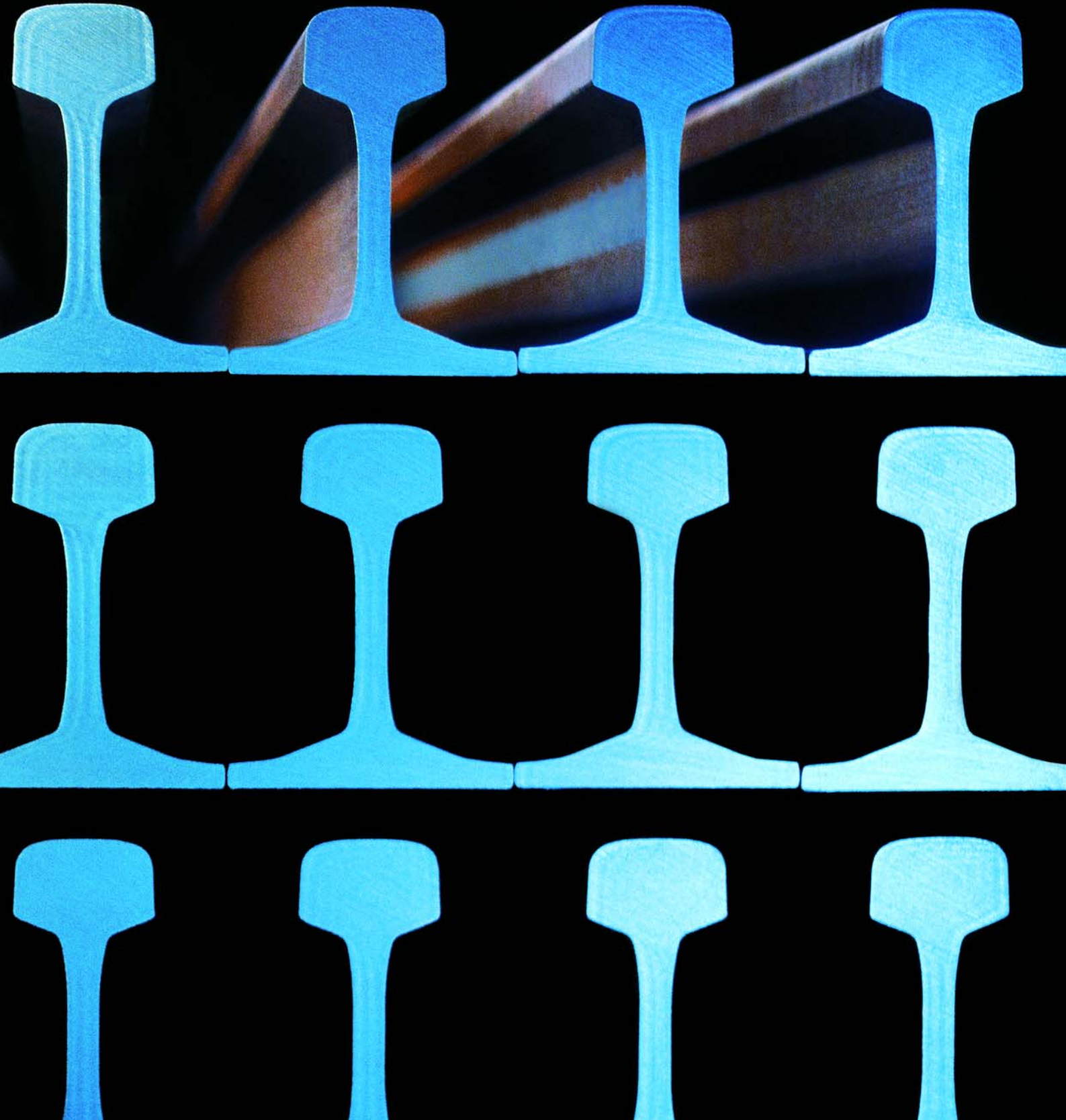


schlatter

The secure connection.

Market Segment Profile.





The secure connection.

Because
quality does not allow
for compromises.

Because
there is no replacement
for experience,
continuity and innovation.

Because
long-term partnerships
are founded on
reliability and trust.

The company. H. A. Schlatter AG is one of the world's leading plant builders offering comprehensive solutions to problems involving resistance welding. The company has been dealing with this technology ever since it was founded in the year 1916, continuously enhancing its core fields of expertise: Welding Systems, Mechatronics and Systems Engineering. Thinking and acting with the customer in mind is a major pillar of the corporate strategy.

Innovation, quality and production reliability are the characterizing features of machines and lines from Schlatter. A modular design concept means that the systems can be tailored to each user's individual needs. It also means that updating to the current state of the art and upgrading to a higher level of automation are possible at any time.

Schlatter invests heavily in the development of new products so that its customers can rest assured of remaining competitive. A large service package includes expert consultancy in the project planning phase aimed at improving the economic efficiency of the customers' production processes. Extensive training in the start-up period plus easy-to-understand documentation ensure that Schlatter machinery and equipment are efficiently operated and serviced. An optimum spare parts supply service and efficient technical support are further quality features ascribed to the Schlatter Group.

Relationships with our business partners are characterized by customer-oriented thinking and acting in all areas and at all levels.

H.A. Schlatter AG is organized in business units: Sheet Metal/ Posiweld, Radiator, Profile and Wire. These business units are supported by the central departments Procurement, Production, Assembly, Marketing, Controlling and Human Resources.

producers and automobile manufacturers. Out of these regular orders there developed long-standing customer ties based on a spirit of partnership.

As a company listed on the stock exchange, Schlatter is committed to continuous growth in the interest of its employees, customers and shareholders.

Infrastructure

The importance of Schlatter's location near Zurich Intercontinental Airport is clear considering its export quota of over 98 percent. Proximity to customers is assured by a global sales and service network of subsidiaries and expert agents.

Constant market presence

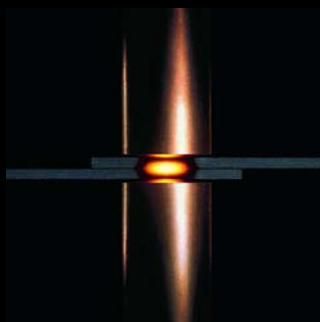
One of the cornerstones of Schlatter's success is certainly the constancy of its activities, which now date back many decades. Butt welding machines were first supplied to the wire industry as long ago as the nineteen-thirties.

A key factor for Schlatter and its customers is the availability of well trained and experienced specialists. Multilingual proficiency is a priority in order to enable world-wide communication.

Schlatter's first mesh welding machines were developed at the end of the nineteen-forties, followed by rail welding machines in the nineteen-fifties. It was in this same decade that the company obtained its first references among radiator

Modern assembly and inspection halls are available so that Schlatter can test even large-scale lines on its own premises. A well equipped laboratory is like-wise available to promote the further development of welding processes.

Business Unit Sheet Metal



Activities of the Sheet Metal business unit are concentrated on the following markets:

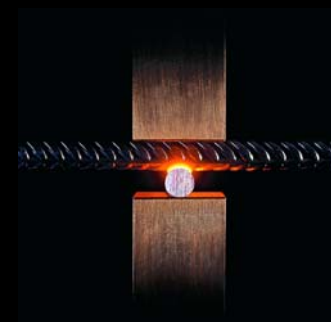
Heating radiator industry

Automobile and wagon manufacturing industry

Sheet metalworking industry

Aircraft industry

Business Unit Wire



Activities of the Wire business unit are concentrated on the following markets:

Reinforcing mesh

Industrial mesh

Wire products

Business Unit «Profile»

The range of products offered by the «Profile» business unit covers flash butt welding machines for joining together large-format sections.

As masters of our core fields of expertise we can perform applications demanding high standards of quality, e.g. the continuous welding of rails for railway tracks.

A systematic analysis of requirements is used as the basis for planning each project so that the business unit's unique skills can take full effect. Computer-aided design and the development of essential hardware and software modules are performed in-house. Similarly, Schlatter was itself responsible for developing the welding process controller and the process monitoring and documentation system. Further elements of the service package include the testing, inspection and start-up of machinery and lines, plus training measures for the customer's personnel.

Railtech Schlatter Systems (RSS) was founded to meet market demands for the delivery of complete rail welding lines. This joint venture unites Schlatter's welding technology with the systems engineering of a competent partner, making RSS the world's leading supplier of complete rail welding systems for both stationary welding workshops and mobile «on-track» duty. RSS plans and delivers turn-key produc-

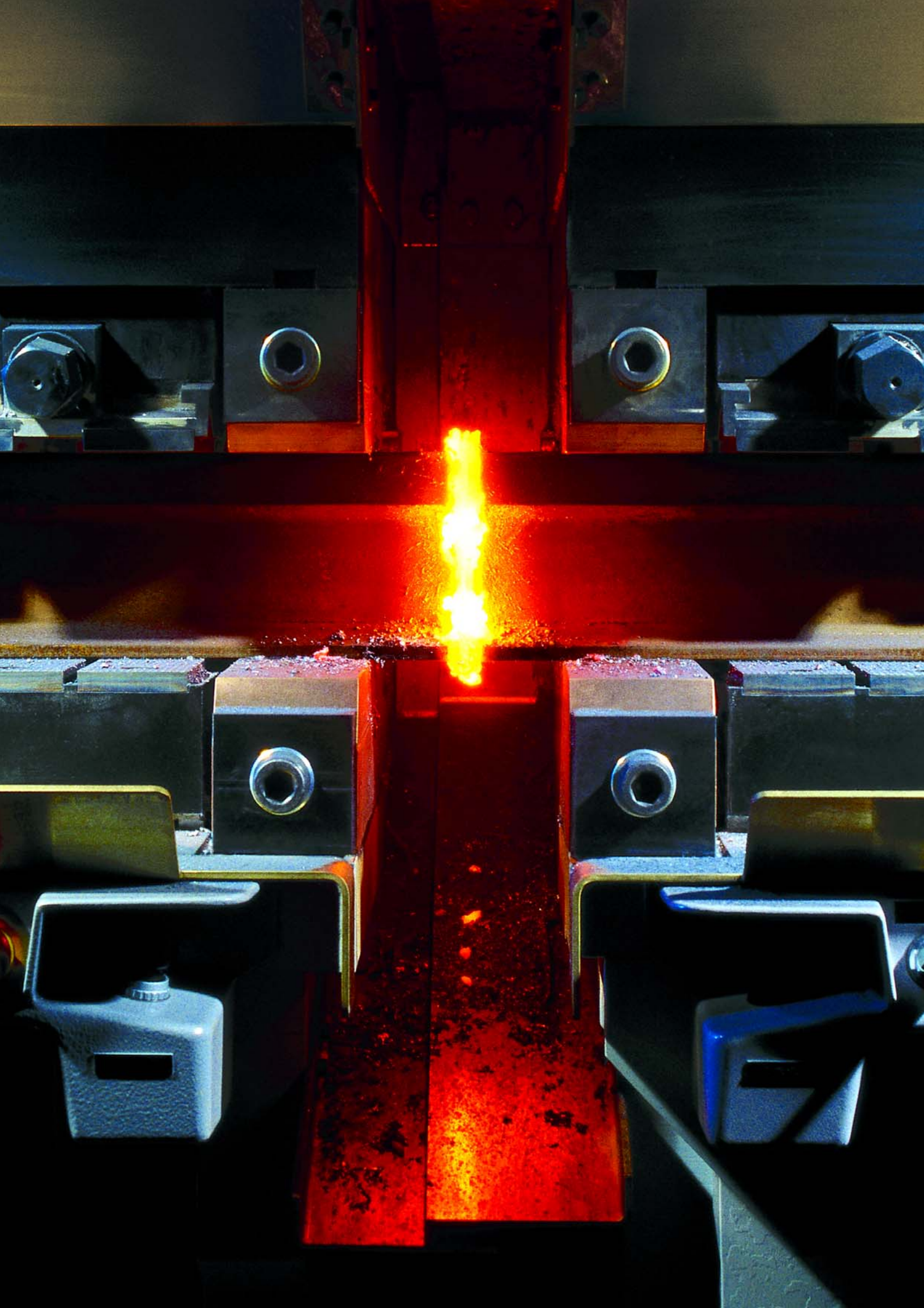
tion lines with all essential auxiliary modules such as processing machines, roller tables, testing machines, and so on.

Special importance is attached to project management during the execution of orders and to after-sales service with technical and spare parts support throughout the working life of the machinery and equipment. Customers thus enjoy long-term security for their investments. Personnel in the global sales and service network undergo intensive training in preparation for their demanding duties, ensuring that support is available from competent specialists wherever the customer may be.

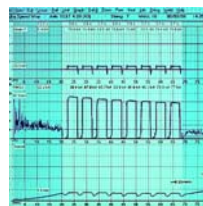
Business Unit Profile

Activities of the Profile business unit are concentrated on the welding of tracks and points blades for the construction of railway lines.

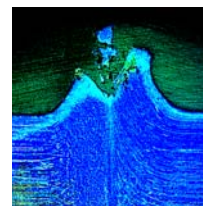




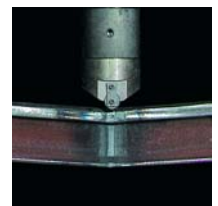
Technical know-how and experience form the basis of the expertise in three core competences: welding systems, mechatronics and systems engineering.



Extract from a welding diagram



Macrosection of a flash butt weld



Static bending test of a welded rail

Core competence

H. A. Schlatter AG is specialized in the building of machines and lines which work by the electric resistance welding principle. Electric resistance welding is a cost-effective process which connects metal parts in a material-locked joint by using electric power to heat them to welding temperature while subjecting them simultaneously to a mechanical force.

There are some distinct advantages to be gained from joining together large-format sections such as rails for railway tracks by the flash butt welding process rather than other joining methods. No filler material is required. The zone affected by heat and thus reduced in hardness is very narrow. Denting of the weld seam by the train's wheels is thus reduced, prolonging the life of the railway track.

Flash butt welding consists of several sub-processes. Control of the process variables «current», «force» and «travel» – and particularly their correctly timed interaction in each phase of the process – is assured by a SWEP 06 welding processor, while the continuous recording and evaluation of process data is performed by a process monitoring and documentation system.

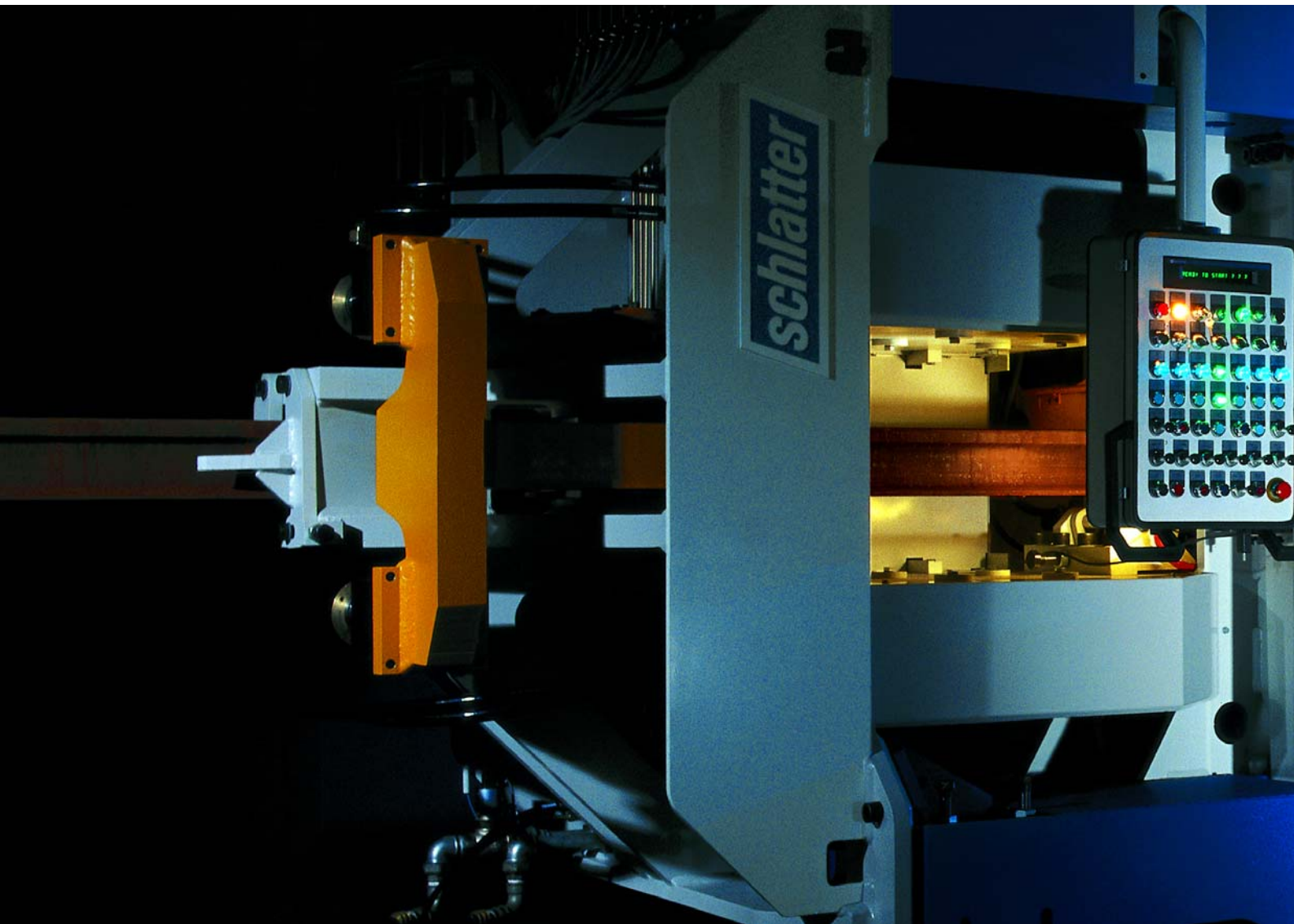
Mastery of this demanding welding process would not be possible without the optimal performance and interlinking of the system's mechanics, electronics and information technology – in a word «Mechatronics». Systems engineering and hence the ability to develop equipment for producing welds of the highest quality is based likewise on this expertise. In other words: The core expertise of H. A. Schlatter AG lies in the synergy-creating mastery of welding technology, mechatronics and systems engineering.

Continuously welded rails are essential for comfortable and safe railway travel.

Turning short rails into long Modern railway companies have fast, efficient and comfortable rolling stock. These merits can only take full effect, however, if the tracks themselves are built in accordance with high standards. A vital role in this connection is played by the continuously welded rail. The once familiar «clackity-clack» sound of a train running over rail joints is now a thing of the past. Its disappearance has gone hand in hand with greater comfort, longer rail and wheel life, and hence far higher economic efficiency. Today, short rails from the rolling mill are mostly joined together by welding in a rail welding shop to form long rails for delivery to the track construction site.

Schlatter developed the first rail welding machine at the beginning of the 1950s. Shortly afterwards Schlatter was already firmly established as the market leader – a position it has occupied with immense success to this very day.

Schlatter's stationary rail welding machine GAAS 80 has several epoch-making features: An extremely simple but sturdy suspension and guide system is used for the mobile welding carriage. The company's heavy-current rectifier has a successful track record going back several decades. A constant, high standard of weld quality is assured by reliable control of the key welding parameters (current, force, travel) and the servo hydraulics. All process data are recorded and evaluated by a process monitoring and documentation system for the verification of quality assurance.



The welding machine GAAS 80 may well represent the heart of a rail welding shop, but it still needs to be combined with various auxiliary units to form a complete working system. Responsibility for the engineering and sale of such plants rests largely with Railtech Schlatter Systems.

Today, countless rail welding machines from Schlatter can be found working to the satisfaction of highly demanding customers on all continents.



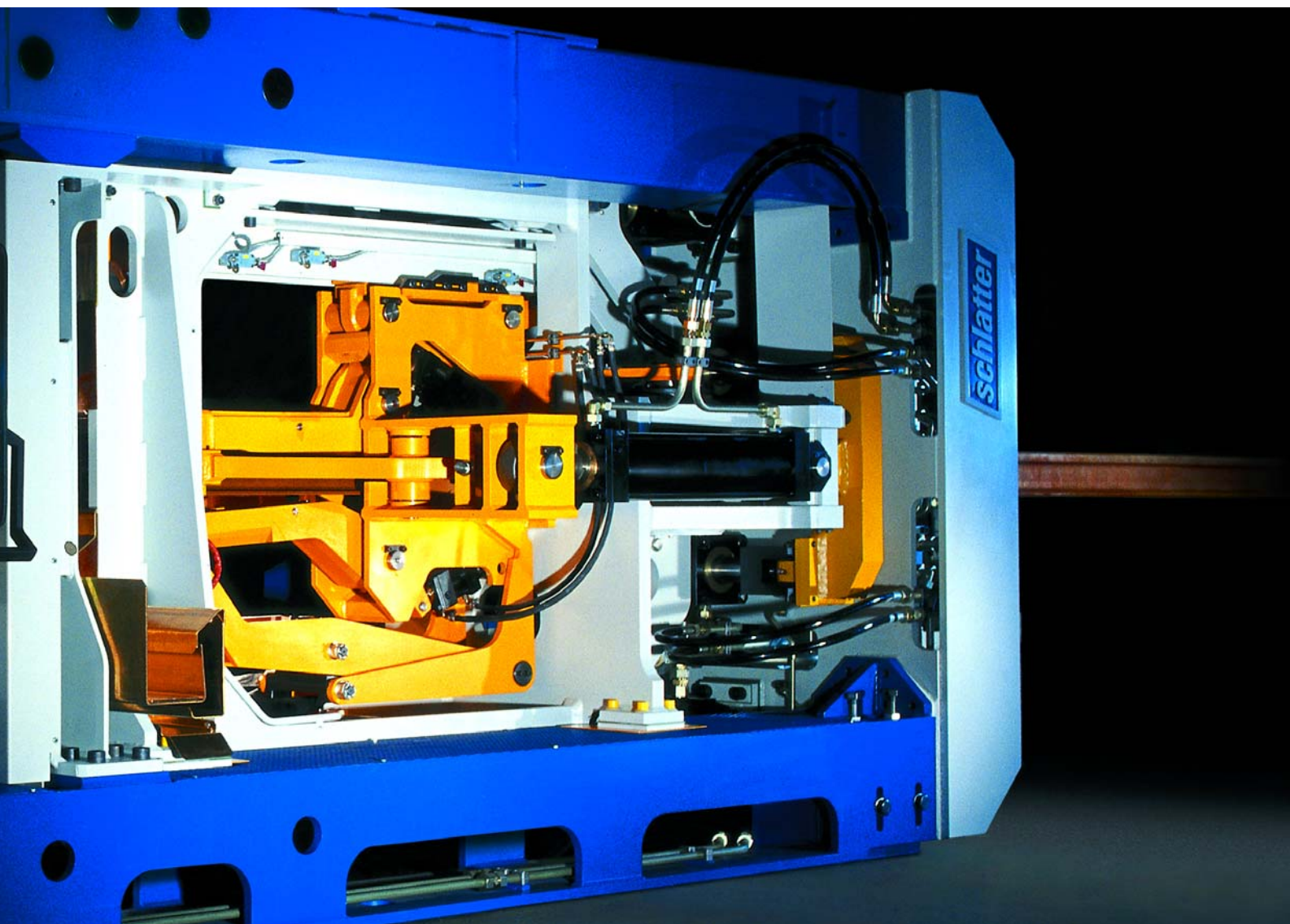
Flash butt weld of a rail



Automatic flash removal by clipping



Rail weld after removal of the flash



Practice-proven welding processes ensure quality results for the diverse welds required in the construction of railway points.

Construction of railway points
Railway points and crossings are exposed to very high loads. Elements made of hard manganese steel or high-alloy steel are used in the particularly critical zones of railway points in order to prolong their working life. Special processes have been developed and patented for joining these special steels to conventional rail materials. Together with a number of European points construction companies Schlatter has perfected the optimal welding process and points construction welding machine – the GAA 100.

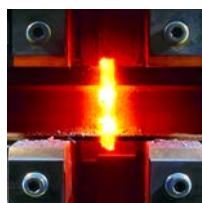
This welding machine has an extremely compact housing, which is open at the front for flexibility of use. The various points components can be fed in from the front or the side. A self-contained clamping and upsetting system prevents deformations during the working process. Workpieces can be aligned and welded with tenth-of-a-millimeter accuracy.



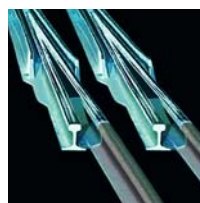
Uniform heating over the entire cross section of the workpiece is guaranteed by the rectified welding current. The combination of controlled servo hydraulics and flash butt welding with direct current permits the highest quality of welding, particularly for the special steels used in the construction of railway points.

Quality assurance is exceptionally important in the points construction field. The welding machine is equipped accordingly with a service-proven process monitoring and documentation system.

The GAA 100 meets all the requirements imposed on welded joints in the construction of railway points. It works with high levels of reliability and economy.



Flash butt weld



Points centerpiece with welded rail



Clamping cylinders each with 1000 kN clamping force



Flexibility is decisive for the economic efficiency of mobile systems.

Mobile machines and systems
An alternative to producing long rails in central welding shops is to join the rails together by welding «on-track».

The SUPRA FLEX mobile rail welding machine aligns, welds and removes flash in an automatic cycle the same as on a stationary machine. Based likewise on AC technology, the mobile version is adapted in its mode of operation to produce joints which satisfy the high quality standards required. This is assured furthermore by a welding process controller and verified by a process monitoring and documentation system.

On-track use of the SUPRA FLEX requires an additional carrier vehicle plus a diesel engine generator and further auxiliaries to complete the welding system. Railtech Schlatter Systems provides the necessary engineering for individual versions.



The SUPRA ROADFLEX is based on a combined rail/road vehicle available in a variety of versions. Designed to run «under their own steam» on roads as well as railway tracks, these vehicles are highly mobile and therefore extremely flexible in use.

The SUPRA MULTIFLEX is accommodated in two standardized containers. Depending on the particular requirements these containers can be mounted on narrow, standard or wide gauge flat wagons for transporting to the work site.

As a further option the SUPRA FLEX can be integrated in complete track modernization trains.

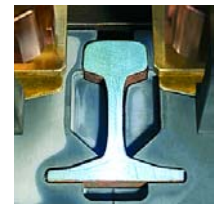
Whatever the customer's specific requirements it is thus possible to integrate the service-proven SUPRA FLEX as a standard core product in individual system solutions to match.



Clamping system in starting position



Rail in welding position



Rail with flash removal tool



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