

## Reference

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Eiffel Deutschland  
Stahltechnologie GmbH



**EIFFEL DEUTSCHLAND  
STAHLTECHNOLOGIE**

[www.oerlikon-welding.com](http://www.oerlikon-welding.com)

# World Champions



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## Company profile

Eiffel Deutschland's history dates back to 1808. Originally set up as a hardware merchant in Hanover, in almost 200 years the company has developed into an industrial company operating internationally. Eiffel Deutschland – previously Krupp Stahlbau Hanover (KSH) – has been involved in numerous internationally recognised construction projects, such as the Transrapid in Shanghai (railway points construction), the El-Ferdan Bridge over the Suez Canal (the world's largest swing bridge), many bridges over the Rhine and the pavilions for Expo 2000 in Hanover.

Eiffel is one of the five main companies making up Eiffage, Europe's seventh-largest construction and licensing company. With some 61,500 employees, in 2007 the group generated sales of 12.5 billion euro. Within the group, Eiffel is responsible for the Steel Construction division (bridge building, civil engineering works, locks, floating gates, metal roofing for buildings and industrial halls). Along with the Eiffel company member, Eiffel Deutschland Stahltechnologie, represents one of Europe's largest steel construction companies achieving annual sales of 300 million euro at four fabrication sites.

## What major projects are Eiffel Deutschland currently involved in or has it recently been awarded?

The seven main halls at the new Stuttgart Regional Trade Fair, each of which provides a gross area of 10,000 m<sup>2</sup> of exhibition space were erected by Eiffel in a single operation. The halls are designed as suspended roof constructions using flat steel retaining strips. The tensile forces of the steel retaining strips are retained by the lattice girders running the length of the halls, and are then transferred into the foundations through support structures. The structure accounts for an installed steel volume of 10,000 tonnes and was completed in a record erection time of only 9 months. With a large number of constructional details and an unconventional system for connecting together pre-fabricated elements in an on-site workshop, this erection operation once again provided evidence of Eiffel Stahltechnologie's outstanding performance.

At present there is a power station under construction in Neurath, as a joint venture involving Eiffel and the companies of Max Bögl and Christmann & Pfeiffer. Eiffel also has its sights set on the construction of stadiums for the 2010 Football World Cup in South Africa. In this field there are only three consortia authorised to bid on the basis of their experience and reputation.

## How does a classic project proceed?

As a basic principle, the large-scale construction projects we handle are designed for the long term. A considerable time elapses from the invitation to tender, award of contract and ordering of materials. This is a complex business especially as at present it is impossible to forecast the price of steel and we still have to submit a binding offer, while of course, always having to work within the context of international competition. Planning the work is also a demanding business. Steel construction is closely linked into underground engineering and foundations, as well as the construction of spectator stands, for example. Every delay has a knock-on effect and therefore we must make the corresponding resources available for erection on site at the planned time. The main points of reliable partners are to ensure that production planning runs smoothly. After all a World Cup cannot be delayed for a few weeks!

## How do you assess your collaboration with OERLIKON?

When it has come to the crunch, OERLIKON has always looked for, and found, ways to support us in every way they can. For the Stuttgart Trade Fair, we even had some of the welding electrodes being delivered to the construction site by taxi. A welding schedule is drawn up as early as the planning stage. This also includes exact specification of the materials to be used, as well as alternative products. Although the situation with supplies was generally very difficult at this time, for this project we were not obliged to switch to alternative products. Our contacts at OERLIKON placed great emphasis on making sure that everything



was at the right place at the right time. In our business, trust and extremely reliable partners are really important factors. In an "emergency" situation, it does not take long to find the right person at OERLIKON or to discuss the costs. Our collaboration with OERLIKON has now extended over 20 years. In the construction of power stations, the auxiliary materials are frequently strictly specified by the tender documentation, and in many such cases our collaboration with OERLIKON is more or less "stipulated". At the same time we have a free hand in purchasing matters, and are pleased to purchase from OERLIKON, as this is a situation based on partnership and good co-operation.

**What volumes of steel are processed and what is the size of your workforce?**

Eiffel Deutschland Stahltechnologie's annual steel requirement is around 16,000 tonnes. In addition, there are orders such as the South African stadium construction project which represent purely supply orders. Elements are prefabricated in Germany and then shipped out from Hamburg, before being erected on site. Eiffel employs around 165 in Hanover, with 70 of these employees in the workshop where 20-30 are welders, 80 are employed in technology and the remaining staff work in administration. We have our own erection management team. Contract wor-

kers are hired by means of works contracts. Sales from orders run to a figure close to 70-80 million euro.

**What importance is attached to welding equipment and welding consumables?**

Welding equipment and welding consumables are exclusively bought-in products. We are familiar with the OERLIKON range and we meet once a year in a large group for an annual review of volumes and prices. Otherwise, our contacts are restricted on the purchasing side to calling forward quantities and – where necessary – submitting queries or asking for information on new products and developments.

Those who use them within our company have the highest regard for OERLIKON's welding consumables. For example, the two components of the arch supporting the roof via tensioning cables over the AWD Arena in Hannover are welded exclusively with OERLIKON welding consumables. OERLIKON's submerged arc welding system was also used here. Many high-profile projects have been completed with OERLIKON's welding consumables: the new Stuttgart Regional Trade Fair, the world's largest swing bridge and the railway points for the Transrapid system are all welded almost exclusively with OERLIKON welding electrodes.

As far as welding equipment is concerned, we know that for our purposes the units must be above all robust and simple to use. For the work we do, we require state-of-the-art technology. In many cases the equipment is operated by contract workers and is subjected to less than gentle use. As we have our own workshop and repair the equipment ourselves, ease of repair is particular important.

**What was the decision-making process undertaken prior to purchase of the Submerged Arc Welding system?**

For many of our purchasing decisions we actively seek the advice of those who will be using the equipment. We value their opinions and expressly require that the products are tested and feedback reported. Of course, a decision on an investment of the magnitude of a submerged arc welding system also has to be considered from the commercial point of view. On the basis of the key financial values, however, all of the offers we received were comparable, within the normal context. At the end of the day, it was the welders themselves who had the last word in selecting the OERLIKON solution. The consultancy and training received from OERLIKON were outstanding. They took a great deal of time and care and were clearly at pains to handle the order properly and to ensure perfect operation.



### **What use do you make of the OERLIKON Submerged Arc Welding system?**

Submerged arc represents about 30 % of our welding activity. It is only in the construction of power stations that we find the bolt/nut assembly. The ratio of bolt/nut assembly to welding has been exactly reversed from the historical position of 70:30. In the construction of power stations we find components of enormous size, requiring correspondingly long welding seams. Component sizes reach their limits in respect of the size of halls and transportation facilities, but less so in terms of manufacturing constraints.

### **How do you see the future of welding technology?**

A key factor in the future is expected to be the availability of skilled labour. Even today, good welders are in scarce supply, with engineering capacities already being scheduled up to 7 years in advance. From a technological point of view we are always moving forward. At Eiffel, 5 or 6 years ago no welder wanted to use cored wire, so on construction sites they worked exclusively with MMA electrodes. Today, cored wire welding is established and has become indispensable. Such processes of readjustment among users needs time and in this case were also supported by OERLIKON. The materials and the methods were demonstrated and staff were allowed to come to their own conclusions on the basis of experience. In this way the process was adopted, and in the meantime it has delivered many advantages for the company.

Eiffel has now erected a new corrosion protection hall. Investment is taking place in both the location and the future of the sector. Sand-blasting takes place in this hall, followed by priming and then the application of 2-3 top coats.

### **What positive aspects of the collaboration with OERLIKON are particularly noteworthy?**

In the field of process optimisation we are completely open to advice and exchanges with manufacturers. For example, there is the question of how efficiently we can work with a new welding electrode. In the field of power station construction in particular, we concentrate on every small improvement. This is where OERLIKON is a great help to us and provides us with intensive support.

For us, another pleasing aspect of our collaboration with OERLIKON is that the "direct line" through to the end-users operates properly. OERLIKON supports purchasing in all technical matters, and there is also considerable consultation and discussion at the "point of use".

Over the last 20 years we have never had a problem with the quality supplied by OERLIKON. Their consistently good consultancy, quality and conditions are worthy of particular note. Points of conflict have been practically non-existent.

### **What OERLIKON welding consumables are in use?**

FLUXOFIL M8, M10, 14 HD, all in 1.2 mm, represent the main cored wires. For submerged arc welding our main flux is OP 181 in combination with OE-S2 wire in 3.2 and 4 mm. We also use some special MMA electrodes.



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