

Deutsche Edelstahlwerke

High-tech Steel Solutions for Tomorrow's World





Shaping the future with Speciality Steel

Constant global change is posing ever new economic, technological and ecological challenges, which in turn are giving rise to a sustained demand for innovative, efficient and customised solutions in all sectors. In nearly all industrial fields, the materials produced by Deutsche Edelstahlwerke GmbH make a fundamental contribution to the development of these solutions. Providing special steel solutions – that's what the Swiss Steel Group is all about.

Deutsche Edelstahlwerke produces some

650 materials

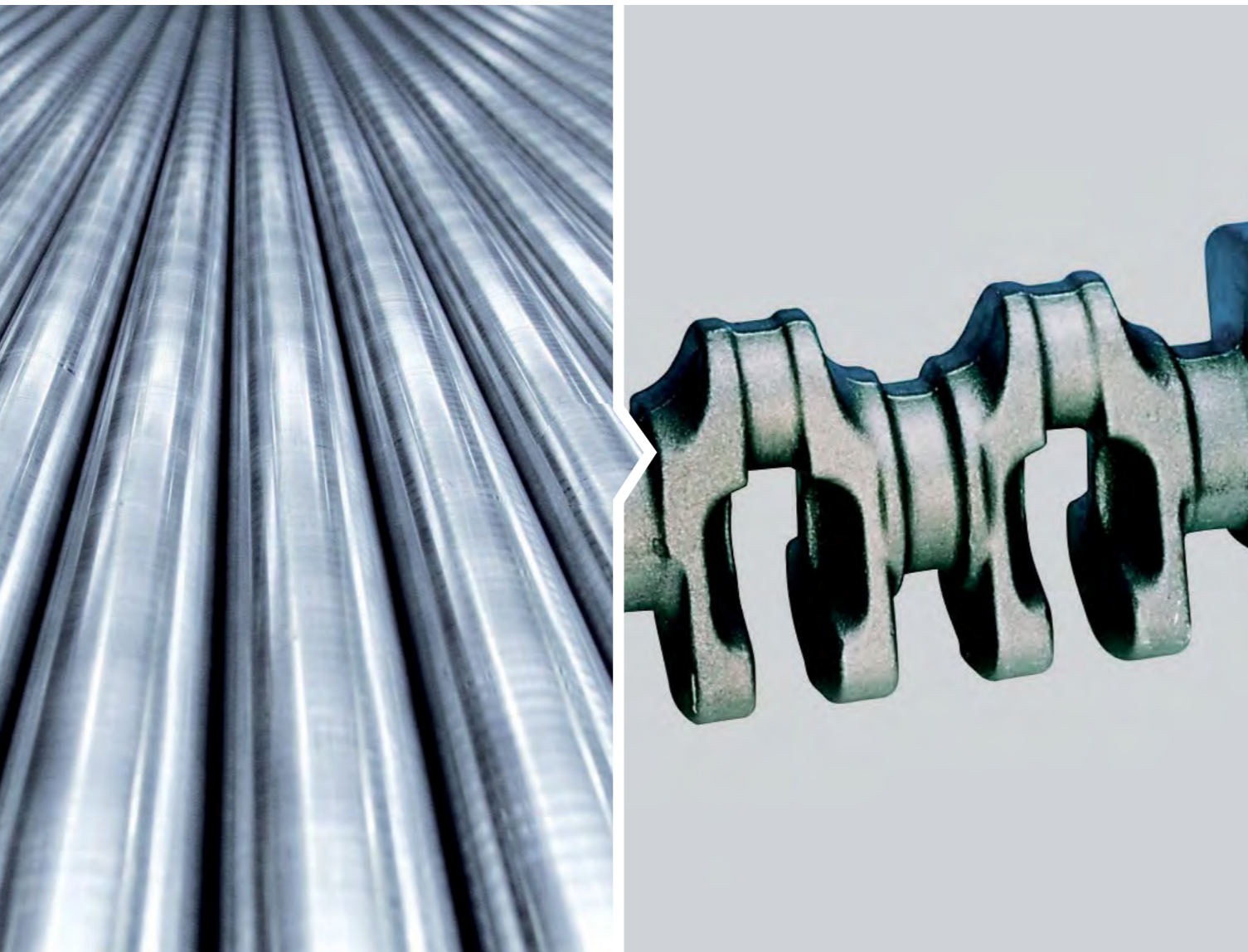
and more than

2,000 material variations

Yet we are MORE than simply a steel producer. Customers from around the world rely on our innovative strength as well as our broad range of additional advisory and other services.

This brochure therefore intends not only to provide information on our individual high-tech products and their applications, but also to show exactly what lies behind the MORE that characterises us, the Deutsche Edelstahlwerke company. As an important link in the value-added chain, we bear a certain responsibility for our customers, our workforce and our environment. This is why our values and guidelines govern all we do, regardless of the specific field.

Deutsche Edelstahlwerke has now been facilitating social trends and currents with high-quality special steels – today from four production sites in Germany – for more than 150 years. We understand that each new development results in fresh and more stringent requirements for our steels to meet. Your expectations are our motivation – so challenge us!



Being aware of megatrends...

... means being able to shape growth, success and the future, since they affect not only the short-term for individual social and economic fields, but rather go to mould society for the long term. And do so worldwide. Deutsche Edelstahlwerke understands these trends and continuously develops suitable and individual high-tech solutions made of steel. For us, the sustained population boom, technical innovations, medical progress and the associated increase in standards of living not only come with risks, but above all present opportunities. For the world, for our customers and for us.



Mobility

Despite dwindling energy resources and greater environmental awareness, population growth and rising standards of living have nonetheless led to a higher need for human mobility. Automotive production is set to increase worldwide and experts anticipate that, in spite of great progress made in the field of electrically powered vehicles, the internal combustion engine will remain a key feature of most cars for some time to come. And while modern fuel-injection engines tend to be smaller than their conventional counterparts, they are still expected to deliver the same performance, but be more efficient at the same time. This can only be achieved with higher fuel-injection pressures, which also cause temperatures to rise in the combustion chamber. This is where the stainless, acid- and heat-resistant steels made by Deutsche Edelstahlwerke come into play, especially as a material for manufacturing valves that are particularly exposed to the extreme conditions in the engine compartment. Our build-up-welding which forms part of our special materials range, can serve to additionally prolong the service life of such valves. From a technological point of view, the energy efficiency of an average car is equally dependent on the technology used for up to 100 anti-friction bearings. Choosing low-friction bearing technology both reduces the requisite engine power and results in lower losses by decreasing the amount of generated heat. Potential for improvement can therefore be found in the materials and in the surface finish of such rolling components and rings. Our high-purity bearing steels facilitate this optimisation process every single day.



Energy Supply

As the global population grows, so too does the need for energy around the world, which only a mix of regenerative energy sources and fossil fuels will be capable of satisfying in the future. Among the ways in which we support this development are our special steels for the wind power industry. In offshore applications, where machinery is subjected to the most extreme weather and climatic conditions, these special steels both come with an extended service life and ensure dependable energy conversion. The search for new and more remote gas and oil reserves demands ever more intelligent drilling systems. The high-strength and corrosion-resistant materials produced by Deutsche Edelstahlwerke make a significant contribution to tapping new reserves, e.g. as a semi-finished product for drill collars and blowout preventers.



Food Supply

The fast-paced development of upcoming regions such as China, India and Latin America has also led to a change in their food supply processes. The trend is towards packaged and mass-produced goods, as a result of which the packaging and plastics industries are booming. However, the sheer volume and variety of available packaging materials are forcing manufacturers to come up with efficiency-boosting solutions, e.g. in the production of PET bottles. An injection mould can feature up to 192 cavities, each of which needs to be individually machined. By providing special and, on request, highly corrosion-resistant steels for injection-moulding purposes, we ensure that the plastics-processing industry can get the best out of its tools.



Our Focus is on Quality

And this applies both to our products and our comprehensive range of advisory services. During the course of an extensive technical consultation, our staff will, in cooperation with you, find out exactly which product best suits you and your application. And in cases for which our standard products are not the best solution, our bespoke material development service will see us cooperate with you to engineer a material that is precisely tailored to satisfy your specific needs. Our product range comprises tool steels, high-grade structural steels, stainless, acid- and heat-resistant steels as well as special materials, all of which can be delivered in the most diverse dimensions, ranging from drawn wire with a diameter of 0.8 mm right up to forgings with a diameter of 1,100 mm. With our finger firmly on the pulse of our time, we are committed to the consistent technological evolution of our steels and to conducting research into innovative materials that are more cost-effective or provide optimised properties for completely new applications.

Tool Steels

Our tool steels come into their own wherever moulds and dies are expected to satisfy extreme requirements, e.g. in the plastics-processing industry, in the packaging sector, during forging, metal extrusion, cold forming or chipping of materials. Depending on the specific application, our highly wear-resistant tool steels are optimised for machining, corrosion-resistance and polishing properties.

toolsteels@dew-stahl.com

Our Tool Steel Brands	
Hot work tool steels	Thermodur
Steels for plastic moulding	Formadur
Cold work tool steels	Cryodur
High-speed steels	Rapidur

Engineering Steel

High-grade structural steels, and especially the micro-alloyed versions, are particularly suitable for situations in which machinery and components are subjected to high dynamic stresses, such as anti-friction bearings in a vehicle. Moreover, our high-grade structural steels are equally used for machinery and gearbox construction since they satisfy the highest standards with regard to purity, surface hardness and fatigue strength.

engineeringsteel@dew-stahl.com

Our Engineering Steel Brands	
Quenched and tempered steels	Firmodur
Case-hardening steels	Carbodur
Nitriding steels	Nitrodur
Hardenable steels	Optidur
Micro-alloyed steels	Microdur
Bearing steels	Durapur
Aerospace steels	Aerodur

Stainless, Acid- and Heat-resistant Steels

Our stainless, acid- and heat-resistant steels are perfect for all applications in which steel is exposed to the harsh forces of nature or corrosive environments. These steels are highly resistant to corrosive and mechanical stresses, are characterised by high strength and elongation values or ensure very high resistance to thermal loads. As a result, stainless, acid- and heat-resistant steels are an ideal choice for the chemicals, automotive, food, aviation, aerospace and mining industries just as the field of mechanical engineering and for energy, medical and transportation technology.

stainless@dew-stahl.com

Our Stainless, Acid- and Heat-resistant Steel Brands	
Stainless steels	Corrodur
Acid-resistant steels	Acidur
Creep-resistant steels	Pyrodur
Heat-resistant steels	Permodur
Non-magnetisable steels	Magnadur
Aerospace steels	Aerodur

Special Materials

In addition to metal powders and continuously cast bars for build-up welding (e.g. to extend the service life of vehicle valves), our range of special materials also includes the Ferro-Titanit® brand, a metal-matrix composite made by Deutsche Edelstahlwerke using a powder metallurgy process. While tool steels and cemented carbides are common choices for the purpose of manufacturing tools and wear parts, Ferro-Titanit® combines the properties of both material groups.

powder@dew-stahl.com

ferro-titanit@dew-stahl.com

Quality in any form: Our product range

Ingots	Continuous casting	Semi-finished products	Sheets	Bars
Engineering steel				
1 - 40 t	<div><div></div> 138 mm 150 mm 265 mm</div> <div><div></div> 475 x 340 mm</div>	<div><div></div> 50 - 320 mm, rising in 1 mm increments</div>	<div><div></div> Width: up to 800 mm Thickness: 4 - 10 mm Length: up to 2,000 mm</div>	<div><div></div> 7 - 250 mm</div> <div><div></div> 50 - 160 mm</div> <div><div></div> Width: 80 - 510 mm Thickness: 24 - 160 mm Width/thickness ratio max. 10:1</div>
Tool steel				
0,6 - 40 t	<div><div></div> 138 mm 150 mm 265 mm</div> <div><div></div> 475 x 340 mm</div>	<div><div></div> 50 - 320 mm, rising in 1 mm increments</div>	<div><div></div> Width: up to 2,000 mm Thickness: 2 - 205 mm</div>	<div><div></div> 7 - 250 mm</div> <div><div></div> 50 - 160 mm</div> <div><div></div> Width: 80 - 510 mm Thickness: 24 - 160 mm Width/thickness ratio max. 10:1</div> <div><div></div><div></div><div></div> Ferro-Titanit® various sizes according to customer requirements</div>
Stainless steel				
1 - 40 t	<div><div></div> 138 mm 150 mm 265 mm</div> <div><div></div> 475 x 340 mm</div>	<div><div></div> 50 - 320 mm, rising in 1 mm increments</div>		<div><div></div> 7 - 250 mm</div> <div><div></div> 50 - 160 mm</div> <div><div></div> Width: 80 - 510 mm Thickness: 24 - 160 mm Width/thickness ratio max. 10:1</div>

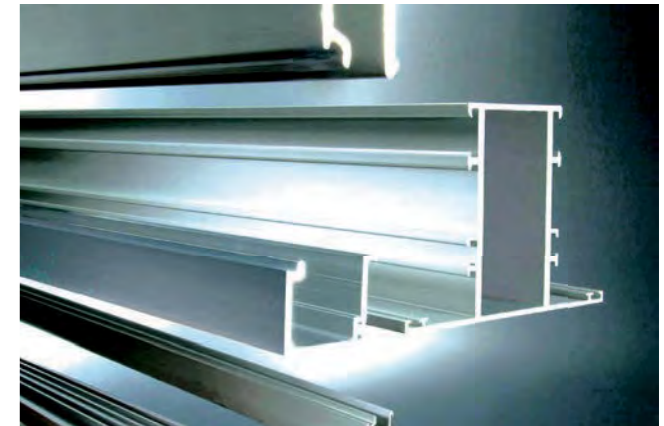
Depending on the material used, dimensional restrictions are possible.

General note (liability)

All statements regarding the properties or utilization of the materials or products mentioned are for the purposes of description only. Guarantees regarding the existence of certain properties or a certain utilization are only ever valid if agreed upon in writing.

Wire rod	Bright steel	Forged products	Pre-machining
Engineering steel			
<div><div></div> 5.5 - 30 mm</div>	<div><div></div> 0.8 - 30 mm</div> <div><div></div> 2 - 16 mm</div> <div><div></div> 2 - 18 mm</div> <div><div></div> 2 - 22 mm</div> <div>Bright steel in bars of 2 to 130 mm Bright steel in coils of 0.8 to 22 mm</div>	<div><div></div> Open-die forgings, rotation-symmetric forgings forged to shape on request up to 60 t single-piece weight</div> <div><div></div> 65 - 1,100 mm</div> <div><div></div> 50 - 750 mm</div> <div><div></div> Single-piece weight up to 23 t</div>	<div><div></div> Pre-machined rotation-symmetric forgings forged to shape</div>
Tool steel			
<div><div></div> 5.5 - 30 mm</div>	<div><div></div> 0.8 - 130 mm</div> <div><div></div> 2 - 18 mm</div> <div><div></div> 2 - 22 mm</div> <div>Bright steel in bars of 2 to 130 mm Bright steel in coils of 0.8 to 22 mm</div>	<div><div></div> Open-die forgings, rotation-symmetric forgings forged to shape on request up to 60 t single-piece weight</div> <div><div></div> 65 - 1,100 mm</div> <div><div></div> 50 - 750 mm</div> <div><div></div> Single-piece weight up to 23 t</div>	<div><div></div> Pre-machined parts, turned parts, pre-machined moulds, dies and frames to customer specification</div> <div><div></div> Cold rolls, 20 - 750 mm diameter</div> <div><div></div> Mandrels, diameter up to 365 mm (round), length up to 28 m</div>
Stainless steel			
<div><div></div> 5.5 - 30 mm</div>	<div><div></div> 0.8 - 130 mm</div> <div><div></div> 2 - 16 mm</div> <div><div></div> 2 - 18 mm</div> <div><div></div> 2 - 22 mm</div> <div>Bright steel in bars of 2 to 130 mm Bright steel in coils of 0.8 to 22 mm</div>	<div><div></div> Open-die forgings, rotation-symmetric forgings forged to shape on request up to 50 t single-piece weight</div> <div><div></div> 65 - 1,100 mm</div> <div><div></div> 50 - 750 mm</div> <div><div></div> Single-piece weight up to 23 t</div>	<div><div></div> Drill collars, diameter up to 280 mm (round), length up to 10 m</div> <div><div></div> Pre-machined, rotation-symmetric forgings forged to shape</div>

Our steels and
where you'll find them



Your sector's not listed? Behind every successful application is an excellent material. Let us find out together which one that could be. Contact us, let's talk.

Our Multifaceted Service Range



We regularly invest in our technology and in ensuring a highly qualified workforce. For reliable quality made in Germany. Made by Deutsche Edelstahlwerke.



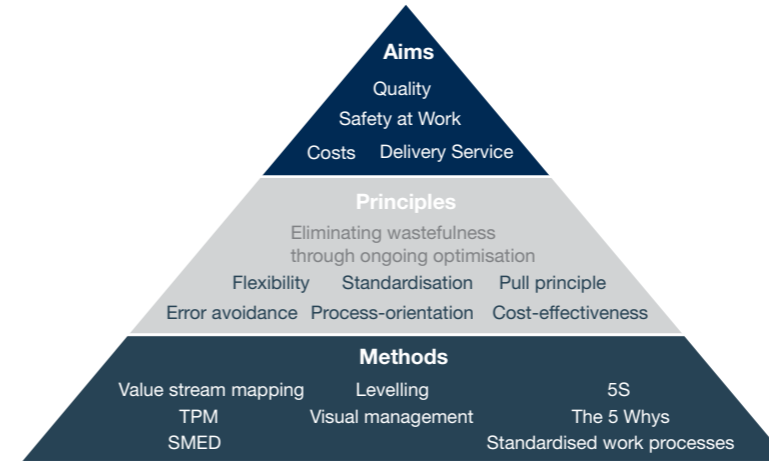
From rough-machined blocks and the production of precision flats and squares right up to ready-to-use products such as cold rolls or mandrel bars, Deutsche Edelstahlwerke will, on request, support your processes with a range of customised processing services. Whatever processing job you may need – peeling, turning, milling, chamfering, polishing, drilling or sawing – the scope of the work we perform for you is determined only by you.

processing.service@dew-stahl.com



But we can also deal with “hardened cases” – in our hardening shops, where your components and tools can be heat-treated using our inert gas, vacuum and chamber furnaces as well as special plasma-nitriding and bronzing equipment. Beyond that, our Hardening Shop also provides its own transportation and testing services.

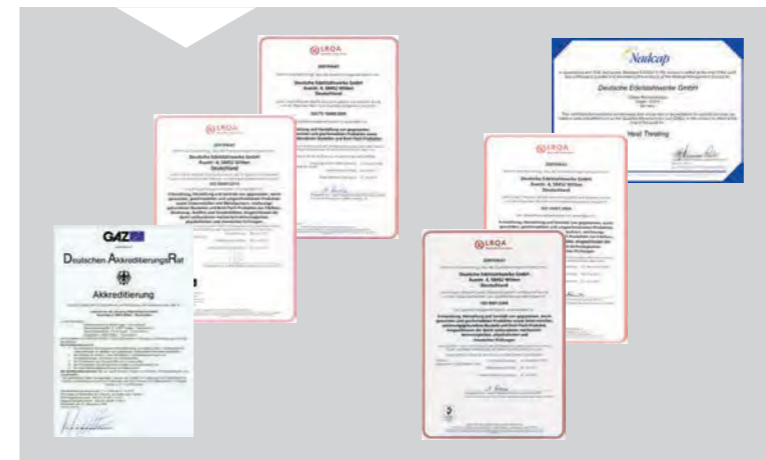
info@dew-haertereie.com



In keeping with the provisions of the Deutsche Edelstahlwerke Production System (DPS), improving the efficiency and safety of our processes as well as eliminating wastefulness are aims we continuously seek to achieve.



As part of a stringent quality management system, extensive process documentation ensures reliably high product quality that is reproducible at any time.



We regularly call on reputable accreditation companies to certify company-wide compliance with these strict process and product standards. We have thus been certified in accordance with such common standards as ISO 9001, QS 9000, ISO TS 16949 and ISO 14001. Furthermore, we are also in possession of numerous sector-specific certificates and approvals issued by customers, e.g. for aerospace applications (NADCAP, AS 9100 – DIN EN ISO 9100) or for the automotive industry.



Always in our Sights – Eco-friendly Products and Processes

We feel responsible for the world we live in, which is why we make a contribution to the development of technologies that protect the environment with innovative solutions made of stainless steel. Moreover, our company favours manufacturing processes and measures that have been proved to have a positive impact on environmental protection:

- » Speciality steel is produced by charging an electric-arc furnace with selected scrap metal feedstock. Approximately 130 tonnes of scrap metal feedstock are needed for a single melt.
- » As one of only few materials, speciality steel is 100% recyclable.
- » Our environmental management system is regularly certified in accordance with the globally applicable ISO 14001 standard.
- » Our energy management system satisfies the requirements of ISO 50001.
- » In close cooperation with the individual departments, our Environmental and Climate Protection Unit continually develops new methods and concepts to consistently increase operational and administrative efficiency.
- » The work performed by the Environmental and Climate Protection Unit is supported by the ideas of our dedicated workforce to ensure we continue to lower our long-term energy requirements and with that also substantially decrease our CO₂-emissions.

environment@dew-stahl.com

Stainless steel is

100% recyclable,

with no quality loss. Eco-friendly production;
reduced CO₂ emissions.



Our Steels and Us – Wherever We’re Needed

We are part of the global sales and distribution network of Swiss Steel International, which puts contact partners in more than 85 distribution and service centres in no less than 35 countries at your disposal. Coupled with our high productivity, this international presence makes us a strong partner for know-how, service provision and stainless steel solutions from a single source. Steel made by Deutsche Edelstahlwerke: around the globe and any place where you are.

Swiss Steel International

Australia	Finland	Latvia	Russia	Thailand
Austria	France	Lithuania	Singapore	Turkey
Belgium	Germany	Malaysia	Slovakia	USA
Brazil	Great Britain	Mexico	South Africa	UAE
Canada	Hong Kong	Netherlands	Spain	
China	Hungary	Poland	Sweden	
Denmark	India	Portugal	Switzerland	
Estonia	Italy	Romania	Czech Republic	

KarriereWERKSTATT

4 vocational training centres

for up to

18 skilled occupations

Our Employees – The Key to Quality and Success

Our high quality standards can only be achieved by putting state-of-the-art technology in the hands of employees whose training and qualifications equal their experience and knowledge. This is why we attach such great importance to providing our staff with outstanding basic and advanced training opportunities.

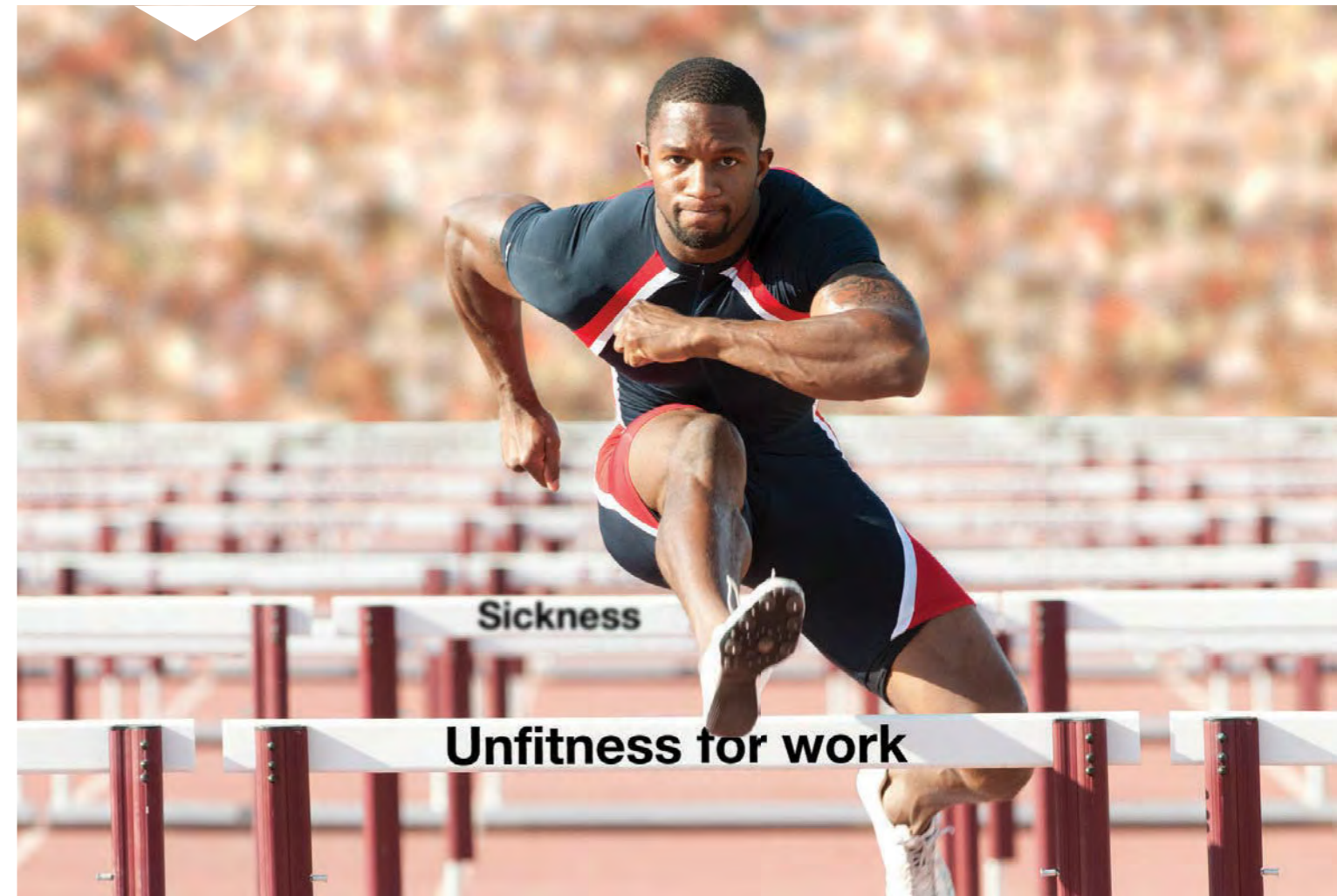


We therefore aim to ensure every employee is always properly qualified and motivated to deal with the challenges of the future by offering a modern, individual and flexible occupational training programme. And staff training is by no means seen as a sideline, but much rather as one of our core competencies, one that has been entrusted to the professionals at our subsidiary, Deutsche Edelstahlwerke KarriereWERKSTATT GmbH. Apart from providing basic and further training programmes, the KarriereWERKSTATT (career workshop) is also responsible for fostering future executives and, in cooperation with a variety of universities, developing job-compatible degree programmes, among other things.

Together with the KarriereWERKSTATT, we create conditions in which our employees can maximise their potential and so actively co-shape their own and the company's future.

info@dew-karrierewerkstatt.com

www.dew-karrierewerkstatt.com



Our Employees – Safe and Healthy At All Times

The fast pace of modern life can make it difficult to take proper care of oneself and one's physical needs on a day-to-day basis. But physical health and mental agility are both key to giving 100% at the workplace and still enjoying quality of life.

Deutsche Edelstahlwerke therefore places great store in ensuring employees stay healthy, an aim facilitated by a strategic Health Management Unit that provides employees with long-term support in staying fit well into their retirement years. The goal is to create behaviour-changing conditions, to which end the unit not only offers a broad range of health-promoting options and advisory services, but also develops new concepts, such as ergonomic workplace upgrades, schemes to permit a better work-life balance or ideas for more flexible working time models.

healthmanagement@dew-stahl.com

In addition, the topic of safety at work is no less significant for Deutsche Edelstahlwerke and is rooted in both concern for the wellbeing of our people and the knowledge that safety-consciousness in thought and deed makes a decisive contribution to company success. As a result, the working methods we both promote and demand all revolve around safety. In our everyday business, this is achieved by ensuring all technical, organisational and behaviour-related safety standards are subjected to an ongoing improvement process and also involves providing regular qualification measures to ensure employees remain fully aware of mandatory safety measures and behavioural rules at all times – and from their very first day onwards. For each new generation of skilled employees, basic vocational training already involves learning to be mindful of their own and their colleagues' safety, and to recognise potential hazards well in advance.

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12/2013 We reserve the right to make changes and technical improvements without notice. Errors and omissions excepted. The product-specific data sheets take priority over the details given in the catalogue.

The desired performance characteristics are only binding if they had been agreed upon exclusively at the time that the contract was made.