HAANE
welding systems

WELDING AUTOMATION – INNOVATIVE & CUSTOMIZED SOLUTIONS

WELDING
CUTTING
HANDLING

WELDING AUTOMATION

COMPANY BROCHURE

HAANE

welding systems

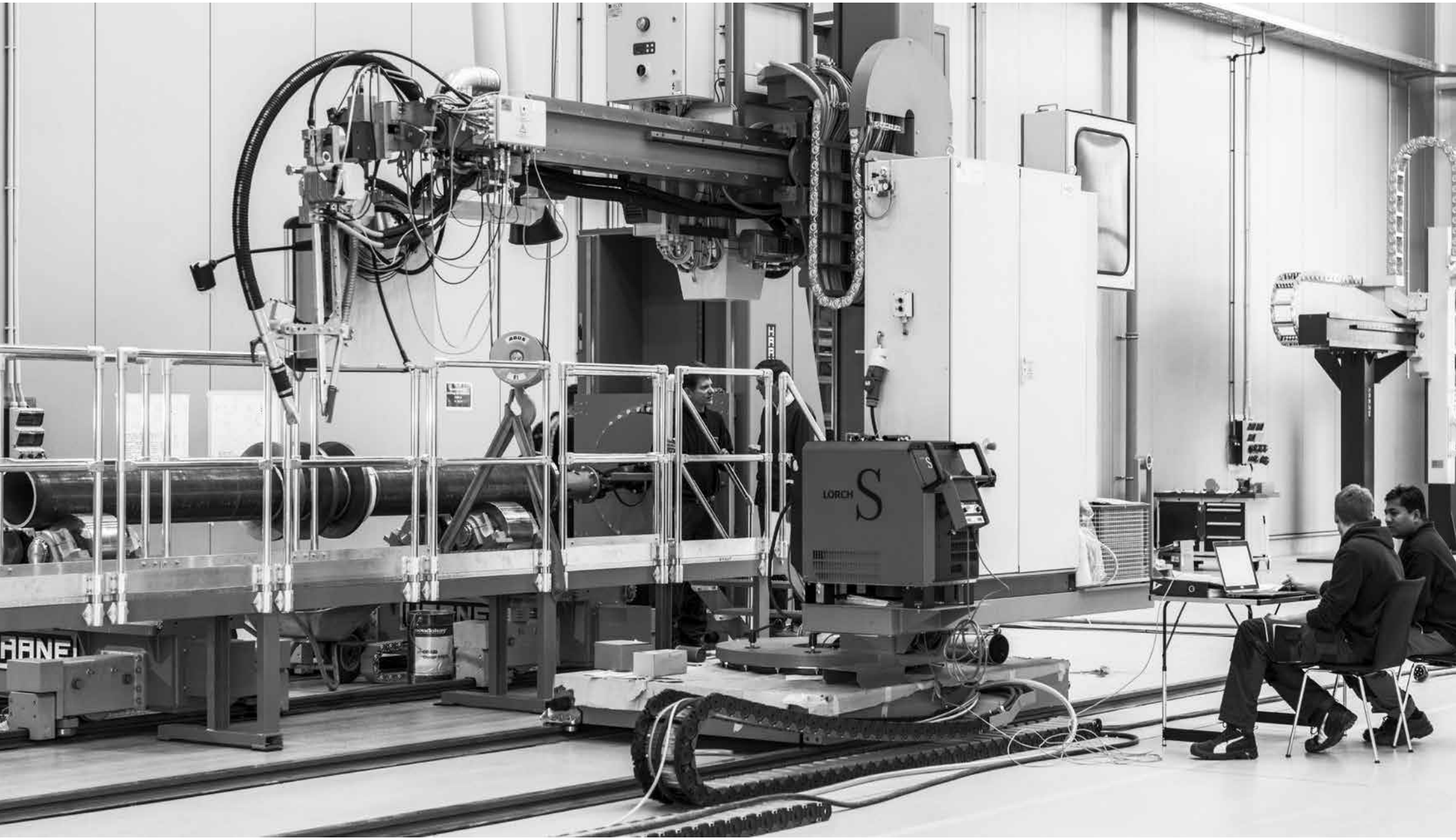
WELDING AUTOMATION – INNOVATIVE & CUSTOMIZED SOLUTIONS

WELDING
CUTTING
HANDLING

OUR PORTFOLIO OF
INNOVATIVE PROJECTS

SOLUTIONS


HAANE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HIGH PRODUCTIVITY **SOLUTIONS**

HAANE welding systems is a company active in mechanical engineering for the welding industry with many years of experience, but nevertheless a young and very flexible team of engineers, welding specialists and a professional production workforce.

Our products? Solutions! We handle different kinds of welding processes, special cutting applications and a very wide range of work piece handling systems.

We not only ensure high deposit rates, but also seek to minimize the non-arc-time which quite often accounts for more than half of the welding time.

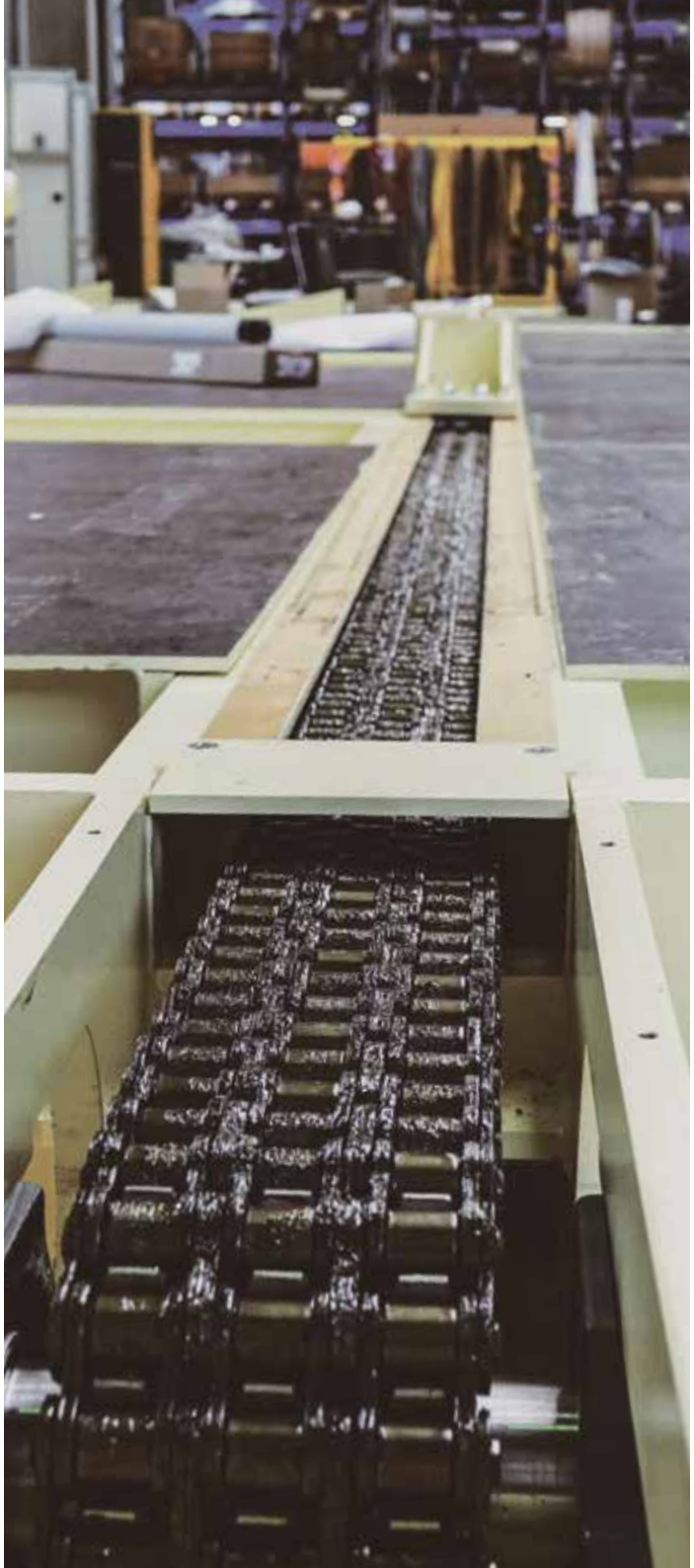
Thanks to our own in-house facilities, 3D-designing (SolidWorks) and manufacturing, we are able to realize customized solutions very quickly.

Being future-oriented and open to new challenges, we will identify the best way how to contribute to the success of your projects. We deliver consultant studies, equipment and turn-key units.

Our assembly, start-up and after-sales crew with a great deal of international experience operates worldwide. They do their job on land and on water.

This brochure offers you a journey through the exciting industry we work in to discover our core values and our contribution to the advancement of welding technology.

OUR MENTALITY? **FINDING SOLUTIONS!**



What if Submerged Arc Welding with a large diameter Single Wire presents a better slag detachability and weld seam appearance in the root run, but when using Submerged Arc Welding with small size Twin Wires you receive much better deposition rates in the fill layers? **Why not use both? Decide for the HAANE Multimode System with a quick shift between Single and Twin SAW process within seconds. Please read page 17.**

What if you want to buy a welding machine and leave it at 80% functionality, because you rightly believe the other 20% will drive up the costs disproportionately, but only see your safe return of investment in the remaining 20%, by lowering the idle times, increasing the arc time, error reduction and optimization of the operating system? **Why not consider a highly automated solution? Please read page 22.**

What if authorities, inspection organizations, or end users require a comprehensive, complete process data documentation for each of the welded pipes, or you yourself want that for product liability reasons? **Why not use the Pipe Track & Trace System? Please read page 24.**

What happens if transport costs for the coils and produced pipes and local taxes jeopardize the profitability for a spiral mill? **Why not go for a mobile spiral mill? Please read page 35.**

What happens if the defect and rework rate of the pipework in pipeline construction drives the costs upwards and the production progress downwards? **Why not weld virtually defect-free seams fully automated? Please read page 36.**

What happens if you have to carry out important welds on highly sensitive components in the distance, but on site there is not enough qualified welding personnel? **Why not weld automated and bring along the equipment ready for use? Please read page 46.**

MECHANICAL AND ELECTRICAL **ENGINEERING**

HAANE welding systems is proficient in their industry of metal processing. Started in the year 1947 consistency and reliability became our highest priority early on.

Mechanics here acquire the best possible training available to compete with global competitors and give off top of the notch welding equipment to their customers. Furthermore our engineers use 3D computer drawings to give our customers detailed blueprints of their acquired machines. These help us analyze and use a shorter construction time. Certificates have been placed for our superb quality management which we implement in our daily behavior. A review of the performance and quality of our products before delivery to the customer is clear to us.

Our professional team of electrical engineers, programmers and commissioning engineers will breathe life into your machine. Our circuit diagrams are created by using the ePLAN P8 software, and the TIA Portal is used to program the PLC software. We have a switch cabinet construction in our own Manufacturing hall.

As components, we use high-quality Siemens products, simply because of the fact that a corresponding infrastructure already exists, in the companies, through programming and service tools. In case of an emergency, a fast, local supply of spare parts is quickly to be found all over the world. Alternatives are also an open idea for us. Our employees are also capable to perform robot programming.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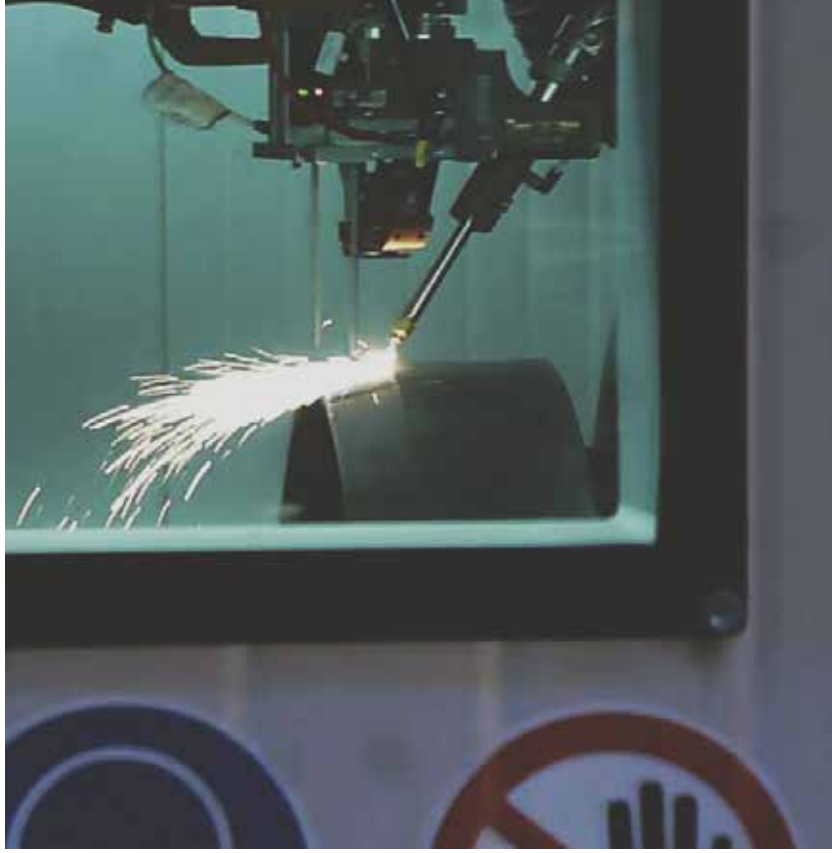
JOINING-, CUTTING- AND **SURFACING**



HAANE welding systems has implemented successfully the following welding, cutting and surfacing processes (acc. to ISO 4063):

» 121 Submerged arc welding; SAW

» 122 Submerged arc welding/cladding with strip electrode

» 123 Multi wire submerged arc welding

» 125 Submerged arc welding with flux cored wire

» 131 Gas metal arc welding; GMAW; MIG

» 135 Gas metal arc welding; GMAW; MAG

» 136 Tubular cored metal arc welding with active gas shield

» 137 Flux cored arc welding; FCAW

» 141 Gas tungsten arc welding; GTAW

» 151 Plasma arc welding, PAW

» 152 Powder plasma arc welding; PTA

» 521 Laser beam welding; LBW

» 72 Electroslag welding; ES

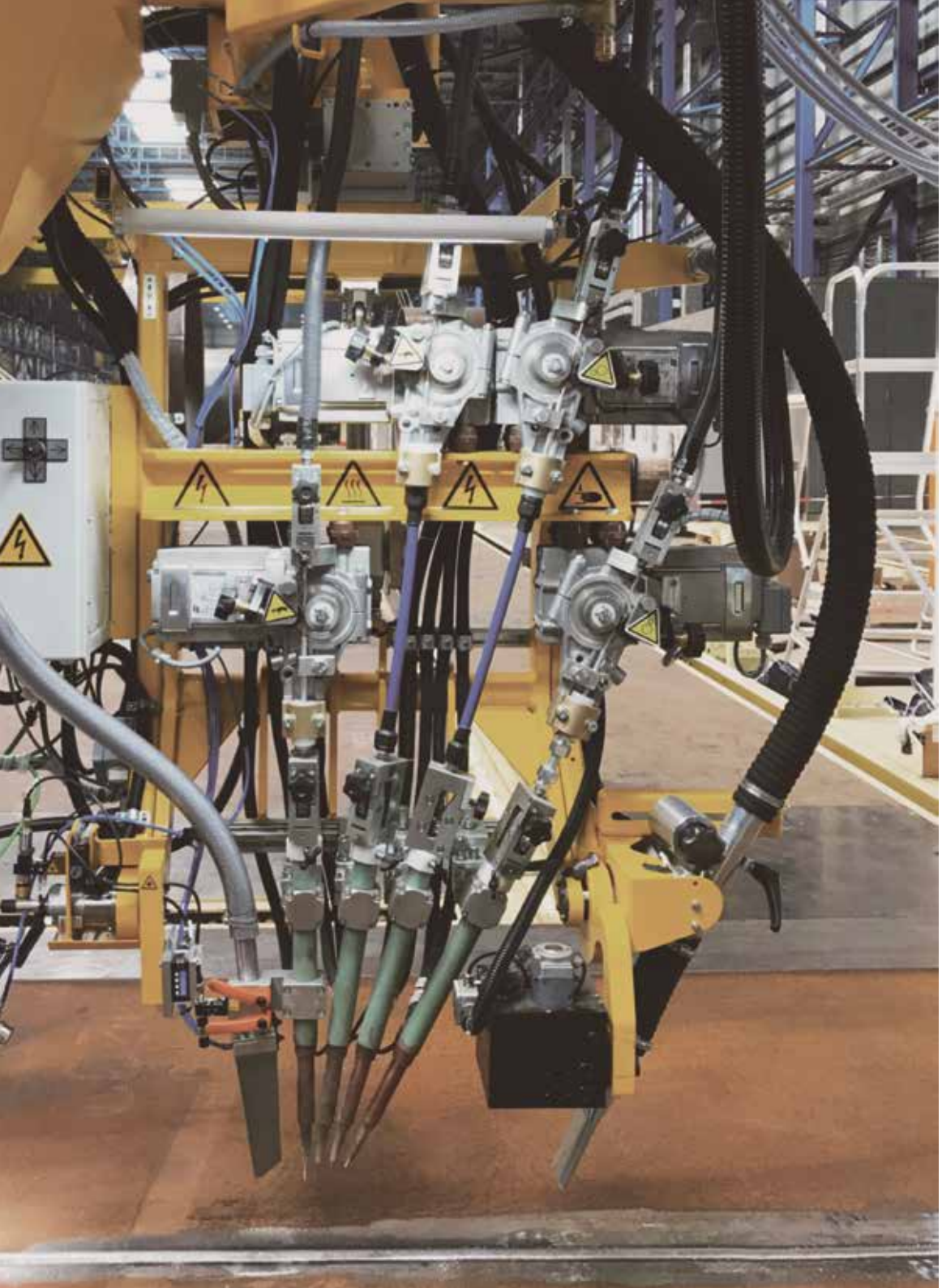
» 83 Plasma arc cutting

» 18 Other arc welding processes, customized solutions

» **HAANE** welding systems Multimode SAW process

We have the will to learn and use new or different welding processes, to develop the optimum solution for you. Contact Us!

WELDING HEADS AND MANIPULATORS (COLUMN & BOOMS OR ROBOTS)



Numerous types of welding heads result in many solutions for our client's problems. Different kinds of welding heads are necessary for purposes such as different material being welded as well as the different situations. We construct welding heads for SAW wire welding and ES strip welding ourselves and already have a large selection of various models:

Single wire with contact dies or tips, Twin wire, Tandem, TandemTwin, MultiMode, Multiwire, xtra-narrow Narrow gap, xtra-small down to 80 mm dia, xtra-hot for up to 450°C environmental workpiece temperature.

For the other welding processes, we use the best welding heads from the leading manufacturers.

Manipulators take over the mechanized or automated guidance of the welding heads along the welding joint. For this purpose, **HAANE** welding systems has a modular system (BZ), from which a diverse range of different Column & Booms can be assembled optimally for the particular application. Away from the usual spectrum, also very small and especially long as for the internal welding of pipes, up to huge, as with welding platforms for the offshore industry.

If the insertion of a robot appears worthwhile as a manipulator for the welding head or as a helping hand for workpiece handling we just do it.

HAANE welding systems also supplies different types of flux feeding and recovery systems, heated and not heated, matching the requirements of the individual welding installation.

HANDLING EQUIPMENT – WELDING POSITIONERS AND ROLLERBEDS

Bringing the workpiece into optimized/best welding position will lead to a remarkable increase of productivity at manual and mechanized welding.

Handling equipment can be used to be an additional axis and can be used to be the main drive for welding, cutting, or coating speed.

HAANE welding systems supplies many different types of welding positioners in a wide range of loading capacities from 2 up to 200 metric tons and rollerbeds from 3 up to 500 metric tons. Customized designs are our specialty.





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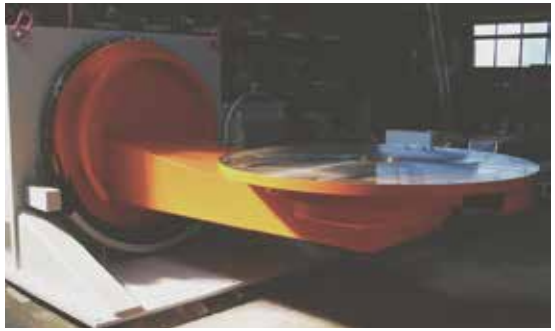
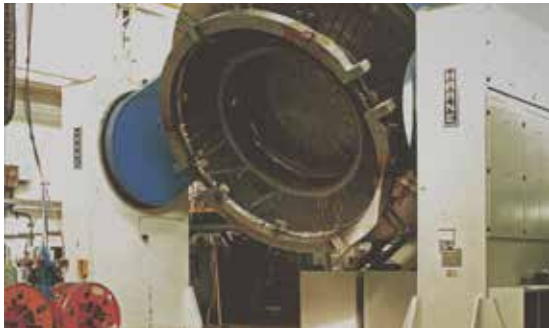
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PROCESS-CONTROLLER **AND HMI**

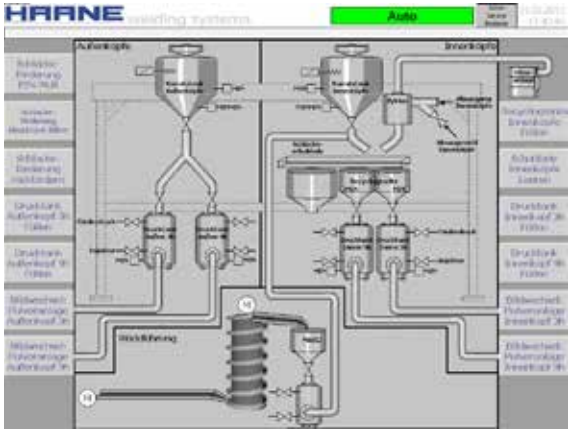
The topic of optimal man-machine communication has rightly become the focus of a machine purchase. A machine is only as good as it can be operated in a functional manner. In addition to this, the special feature of welding machines is that the operator should primarily have welding technology as opposed to programming knowledge.

It is therefore up to the task of the welding machine manufacturers to take this circumstance into account and to keep the welding equipment as simple as possible. This means avoiding special training as a programmer and using knowledge as a welder.

We take these requirements and design our user interfaces according to the user-friendliness. The panels for the PLC controls are selected as large as possible and the menu structure is logically and easily comprehensible. The main menu provides an overview of the current data of the welding machine, numerous, helpful information is contained in the submenus, increasingly also hints for preventive maintenance.

We also offer the possibility to document the data from the welding process and to pass it on to your quality assurance system.

A remote maintenance system is standard for us. We see it as a win-win situation for buyers and sellers, because small errors can be fixed quickly and cheaply.



THE INTERNET OF THINGS: INDUSTRY 4.0. WE ARE ON BOARD!

The path towards industry 4.0 has been unleashed, and we are called upon to use the resulting opportunities. Since we do not use small compact controllers at HAANE welding systems, but PLC controllers in the latest version, we can integrate our own components and others involved, smart system components into our system at any time, by bus, WLAN or Next Generation Mobile Networks . Yes even retrofits are possible.

We are a modern, flexible company and are always ready and able to integrate modern technology into your control system for your benefit.

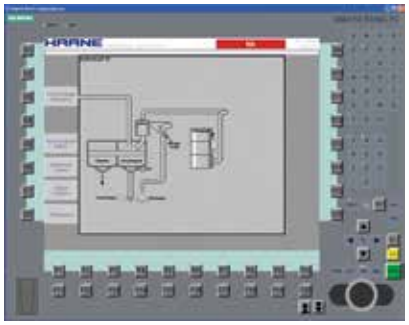
Data documentation and
Pipe Track & Trace System

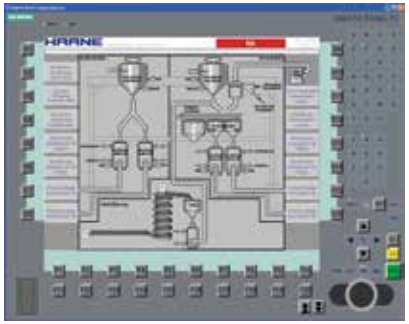
The acquisition, analysis and storage of process data is an important building block for quality management. The additional inclusion of component and machine data gives further important information, a precursor to Industrie 4.0, to production planning and maintenance (Condition Monitoring / Predictive Maintenance).

If these data from all the various individual production processes involved can now be referenced to a single, identifiable component with the inclusion of a respective operator recognition, an ideal production tracking module is obtained.

However, in the existing production there is usually a very heterogeneous machine park with systems of different kind and different age. In this case, linking the respective machine data in the sense of a network, creating interoperability is a particular challenge.

HAANE welding systems and **KLANN Automatisierungstechnik** offer such a functionality with the **Pipe Track & Trace System.**





BEAMS & PROFILES FOR **STEEL AND VEHICLE CONSTRUCTION**

HAANE welding systems supplies highly productive welding systems for the production of beams and profiles, which are used in steel and bridge construction as well as in vehicle construction.

For the manufacturing of beams, profiles for steel and bridge construction, such as T, or double T-beams, or box beams, the highly safe, submerged arc welding process is considered to be particularly safe.

In order to avoid a welding delay, welding is often carried out simultaneously with two opposing welding heads. If these are tandem twin-wire (SAW) welding heads, which are operated with inverter welding power sources of the latest DC/AC or AC/AC method, a welding system with impressive productivity is obtained.

In order to avoid these unnecessary side-effects, we recommend the use of flux feeding & recovery systems with automatic supply of the welding flux from large tanks, as well as bulk coils for the required welding wire.

In rail vehicle construction, joining aluminum extrusion profiles is a typical application. An effective equipment of such a welding machine consists essentially of: Laser seam tracking, two MIG/GMAW tandem welding heads, drying chambers for the welding wire, welding fume extraction.

Production line for interconnecting extruded aluminium sections for vehicle construction in the railway industry. Two welding heads, respectively MIG/GMAW tandem and laser seam tracking. (BOMBARDIER ITINO*,* Marke der Bombardier Inc., oder Ihrer Tochtergesellschaften)*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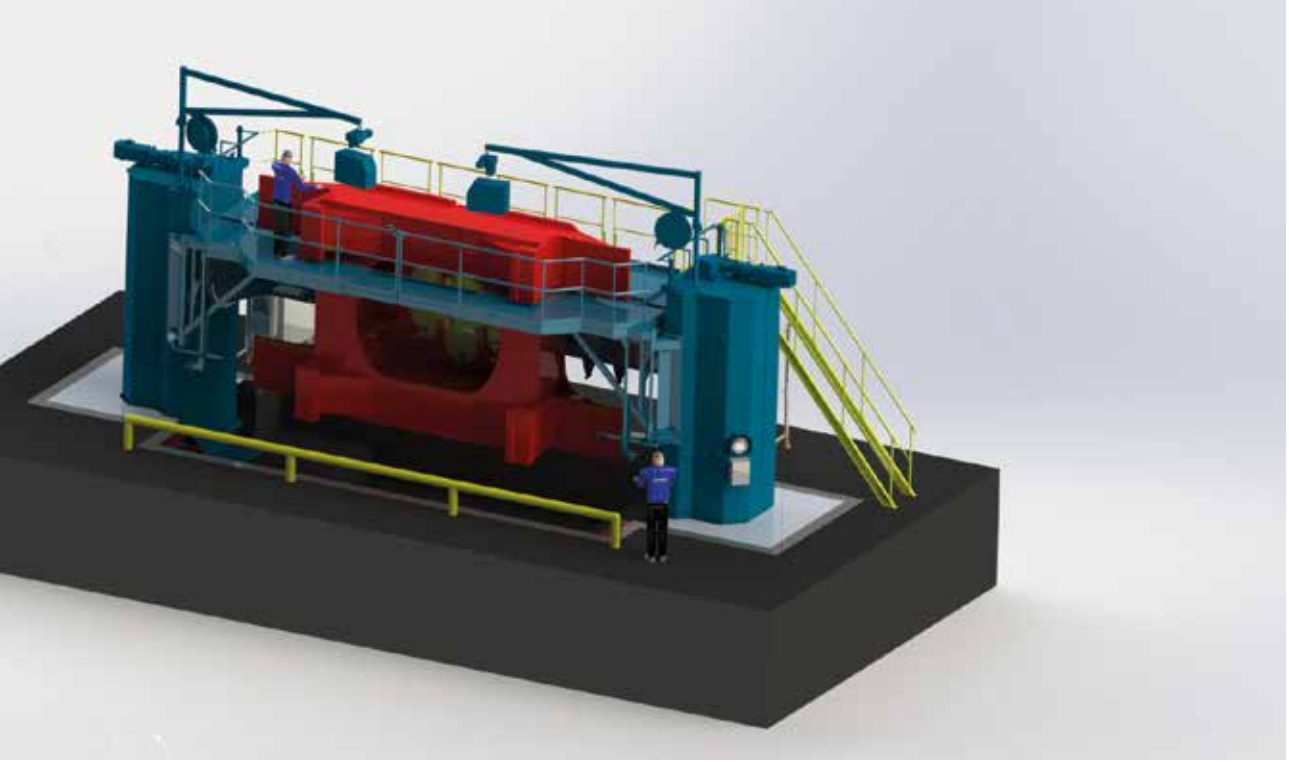

HEAVY MANCHINERY ENGINEERING

Cutting and welding are, in addition to casting, the procedures that enable the designer to convert his complex, multi-dimensional structures into reality by means of manufacturing. In the case of large and heavy components, a large number of weld seams often occur, which must be welded in forced positions if the component cannot be positioned differently. However, such forced-site welds considerably reduce the weld deposite rates and generally do not permit the use of productive, mechanized high-performance welding processes.

HAANE welding systems offers a wide range of various positioning aids for such workpieces, which can be quickly recouped (turn tables and roller blocks).

We also supply welding machines for mechanized and automated welding, which significantly reduce welding times in heavy-duty mechanical engineering due to their high deposition rates.


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2 x 40t
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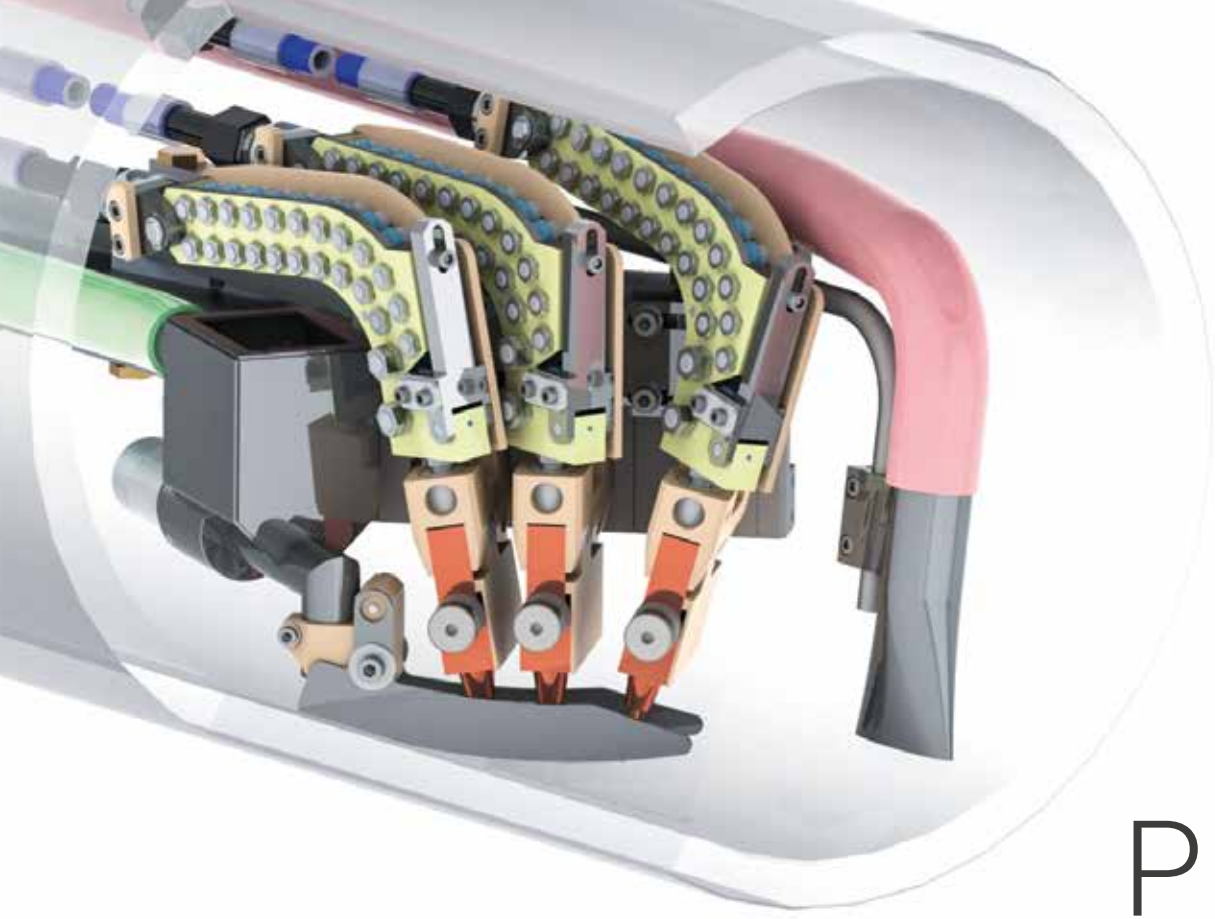
APPARATUS AND
PLANT ENGINEERING

HAANE welding systems produces tailor-made solutions for welding and workpiece handling in equipment and plant engineering. Here, high-quality, valuable products are often produced, where damage to handling or welding is expensive. Often, in the case of a fault, a fresh new production of the very special materials is a very big problem. Therefore, the equipment and plant engineering is also a business area in which one can not be satisfied with an approximate solution for the production machine, but only with the optimum.

The picture shows a UP tandem welding system tailored to the specific customer for the production of apparatus with large diameters. For reasons of space, the automatic carrier / manipulator is designed as a single-rail system. An elevator takes the welder either to the first floor. There, he can reach the workpiece in a safe basket and weld it with the GMAW welding process in an ergonomic position. The second floor leads to the platform from which the welding joints are filled up with the SAW tandem welding process.



PIPE MILL
SOLUTIONS

» We don’t do things half «

Which means we provide turnkey solutions for helical on- / offline pipe mills and for longitudinal pipe mills.

» PIPE JOINT PREPARATION

» PIPE WELDING

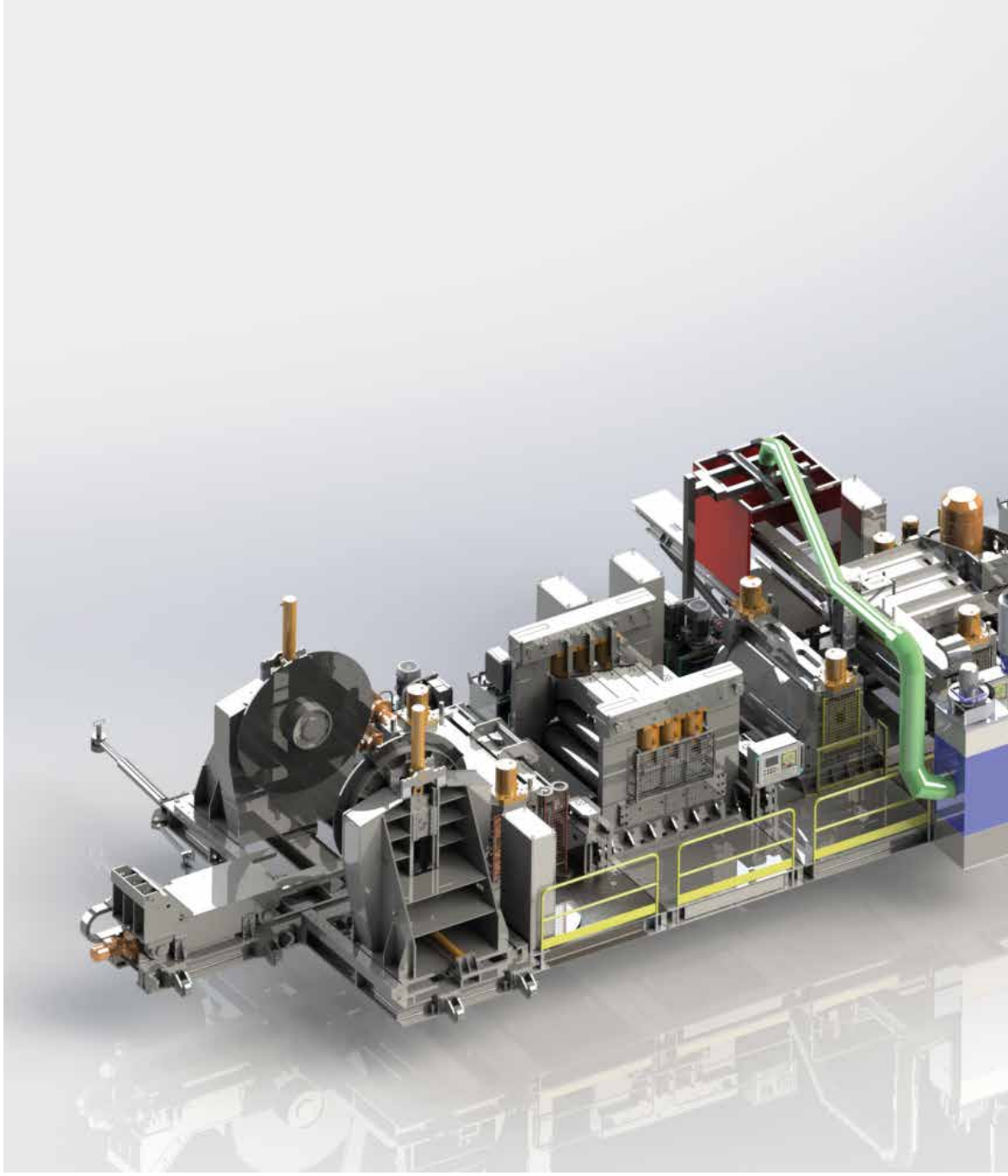
» PIPE HANDLING

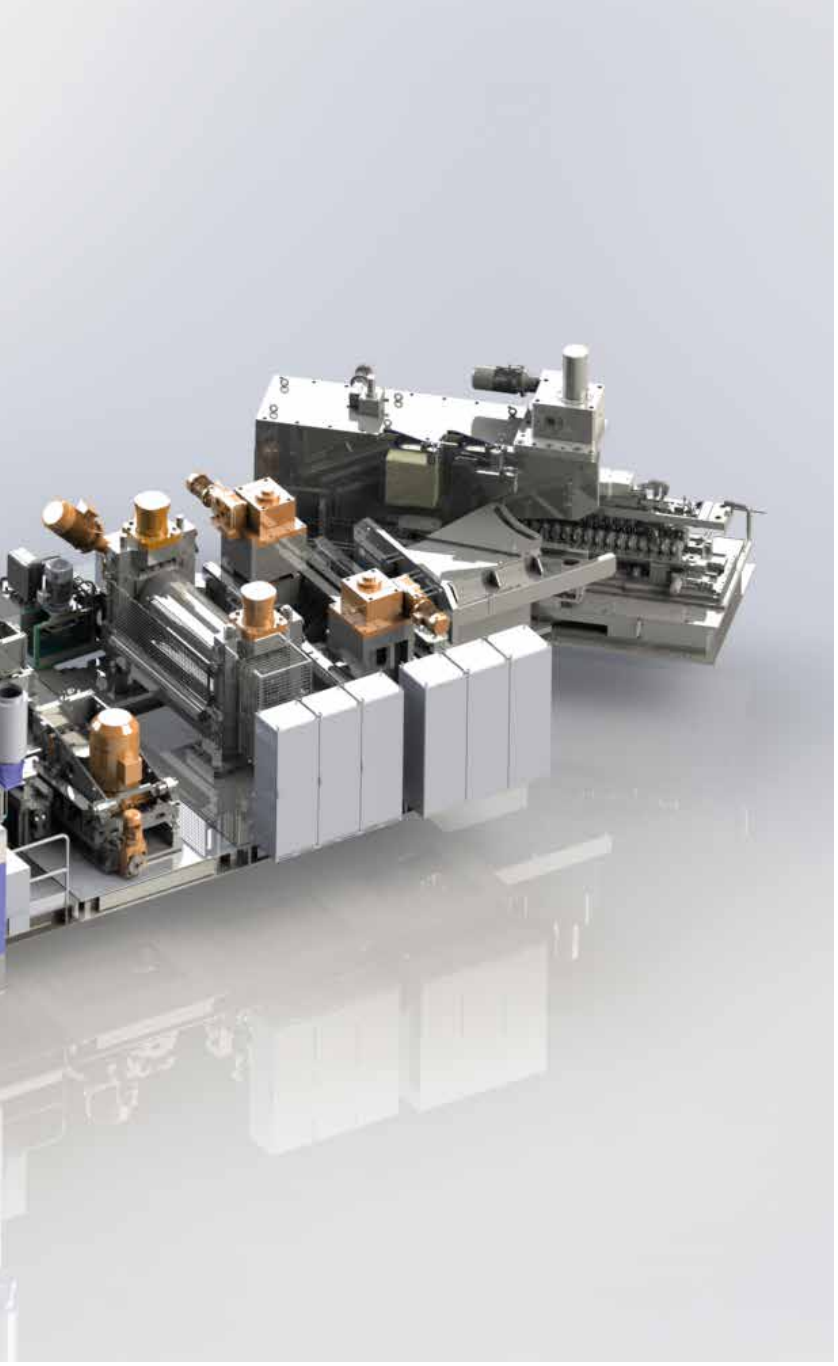
» PIPE TESTING

HAANE welding systems provides components as well as turnkey solutions for longitudinal pipe mills and for helical on-/ offline pipe mills.

» Our tack welding head is a success story:
  Welding speed in ongoing operations of 10m/min up to 15 m/min
  Minimum pipe diameter ›10”
» SAW multi-wire welding heads for inside and outside welding with high deposition rates. Easy adjustable, highly loadable torches as well as cassette solutions
» Flux feeding and recovery systems
» Advanced Welding Process Controllers
» Data Documentation System
» Pipe Track & Trace System

For more details please see our brochure: PIPE WELDING





MOBILE SPIRAL MILL & **SPIRAL MILL COMPONENTS**

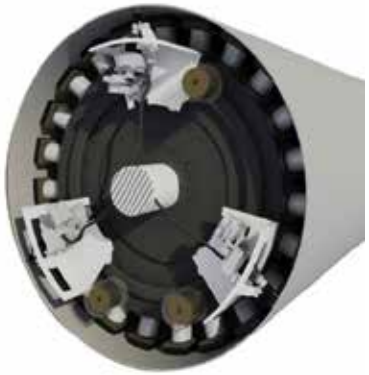
Besides an entire mobile spiral mill, the welding equipment including flux feeding and recovery system, HAANE welding systems also can deliver single components, modules:

1. Coilcar & decoiler
2. Auxiliary drive with side guidance
3. Leveller
4. Clamping device with side guidance
5. Butt welding station (Cross-welder)
   Plasma cutter for edge preparation
6. Edge Milling station
7. Main Pinch-roll (Main Drive)
8. Edge prepending device
   with side guidance
9. Forming station
10. Welding column with UT-station
11. "Flying saw"

Please ask for our special brochure »PIPE WELDING«

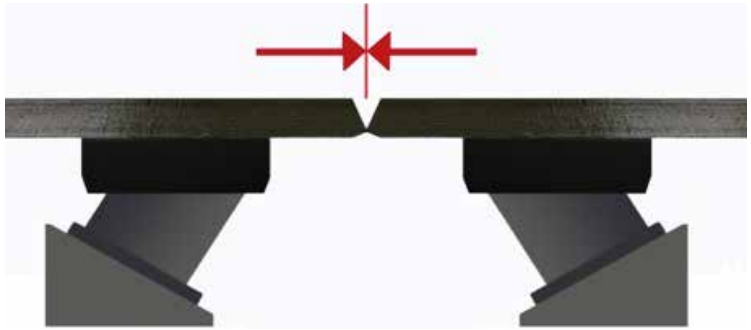
NEW GENERATION
OF INTERNAL WELDER

FOR ON- & OFFSHORE PIPE LAYING WITH PATENTED DUAL WELDING TECHNOLOGY



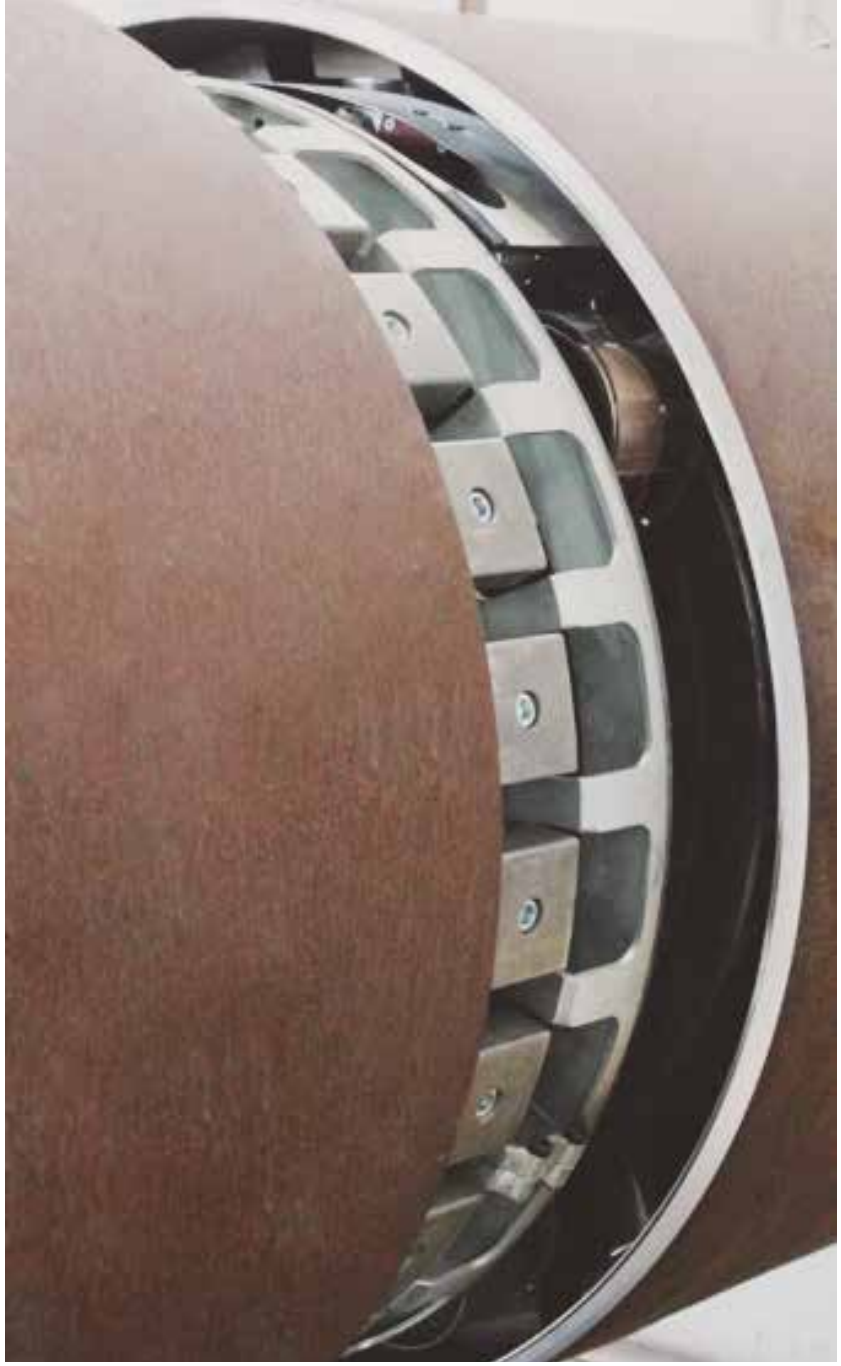
When pipe laying the pipe-to-pipe welding shall happen at a highly efficient sequence and the welds produced must be high quality welds with no defects.

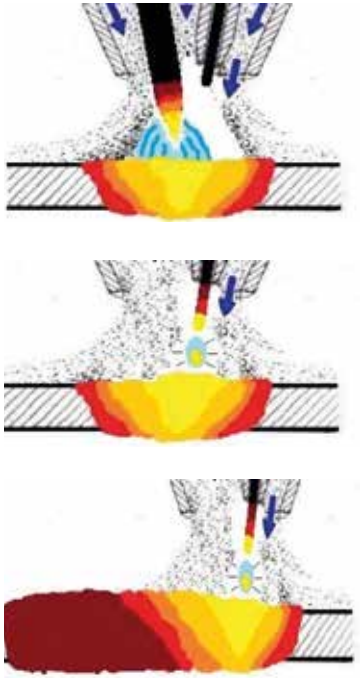
For this purpose, **HAANE** welding systems has developed in close partnership with MAGNATECH Group B.V., The Netherlands, a new generation of fully automatic, electric operated internal welder. The electro-mechanical clamping system with tremendous clamping force increases roundness of pipe ends and provides a precise line-up.



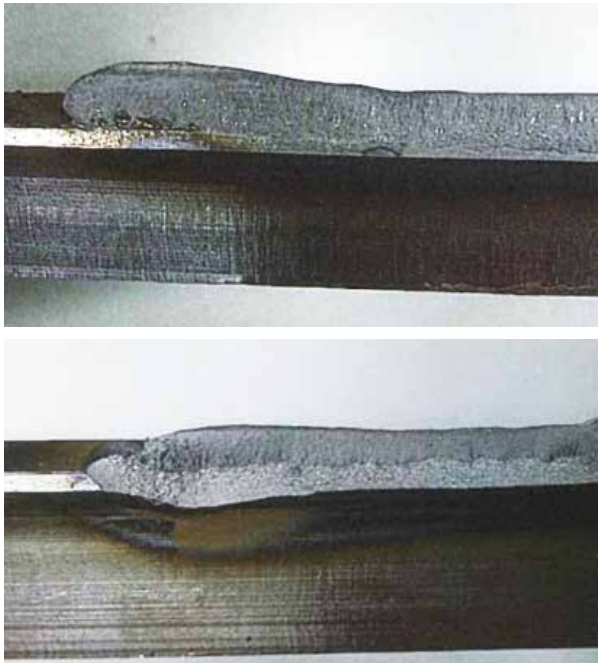
The angle clamping pistons are pushing pipe-ends towards each other providing closed joint fit-up. The laser aided weld path system provides exact coordinates to the independently controlled robotic welding heads for GMAW-orbital welding with several welding heads. Magnatech is taking care of worldwide sales & service of and for the Internal Welder.

Welding of a defect free root is one of the most critical issues at a pipe laying job. The very well-known defects at the start position resulting from insufficient penetration and lack of fusion are resolved by the new patented welding technology.

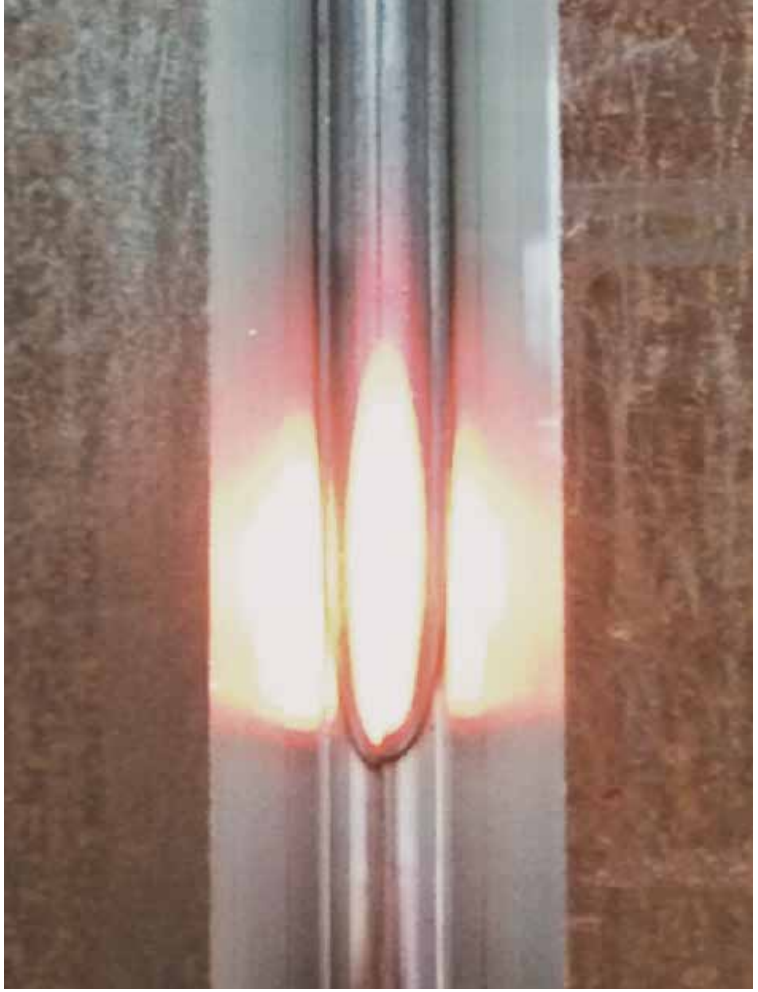




Basic principle of patented Dual Welding Technology



Penetration with and without use of patented Dual Welding Technology



MAGNATECH and **HAANE** welding systems are proud to introduce its internal welder with innovative patented welding technology.

The innovative welding heads with automatic lead/lag angle adjustment, cross movement and height control, start with GTAW and create a fully penetrating melting puddle. In a split second after, the system switches to GMAW and starts in the fluid puddle, generating fully fused starts.

DOUBLE
JOINT-STATION (DJ)

Pipe-to-Pipe welding on site is time and cost consuming. Therefore it is always a good idea to do an on site delivery of the pipes in maximum possible length, limited by handling or transportation reasons.

If the standard pipe manufacturing process in the pipe mill results in a shorter than desired pipe lengths a double-joint station can be used in order to increase the pipe lengths.

Double-joint stations are used to do pipe-to-pipe welding under time and cost efficient conditions. Such stations can be placed in the pipe mill itself, even on a barge, or , in a camp near to the pipe laying site.

HAANE welding systems delivers DJ-stations comprising:

» Joint bevelling equipment
» Pipe transportation systems
» Line-up clamps
» Fit-up rollerbeds
» Preheating equipment
» Circular welding stations for outside and inside welding

If clad or lined steel pipes shall be produced, **HAANE** welding system can supply circular inside cladding systems for pipes from 12” onwards in order to seal the corrosion resistance surface.

DJ-STATION FOR **PIPE LAYING VESSLES**

The highly motivated and experienced HAANE welding systems team has assembled and started-up Double-Joint Stations on several Allseas barges.

All necessary trainings needed, like the Norwegian Offshore Survival Training (OLF), Netherlands Emergency Response Training (NOGEPA), also Helicopter Underwater Escape Training (HUET) plus Emergency Breathing System were carried out in order to acquire the necessary professional off-shore licenses.


Falck
Certificate

Additionally, we also took care of non-arc times, because time is money, especially valid for jobs on a very expensive vessel.

Some technical features:

» Pipe length 13,500 mm each

» Pipe diameter 10” ID

» Circumferential inside and outside welding

» Inside welding with SAW single wire technology

» Outside welding with SAW tandem technology DC/AC

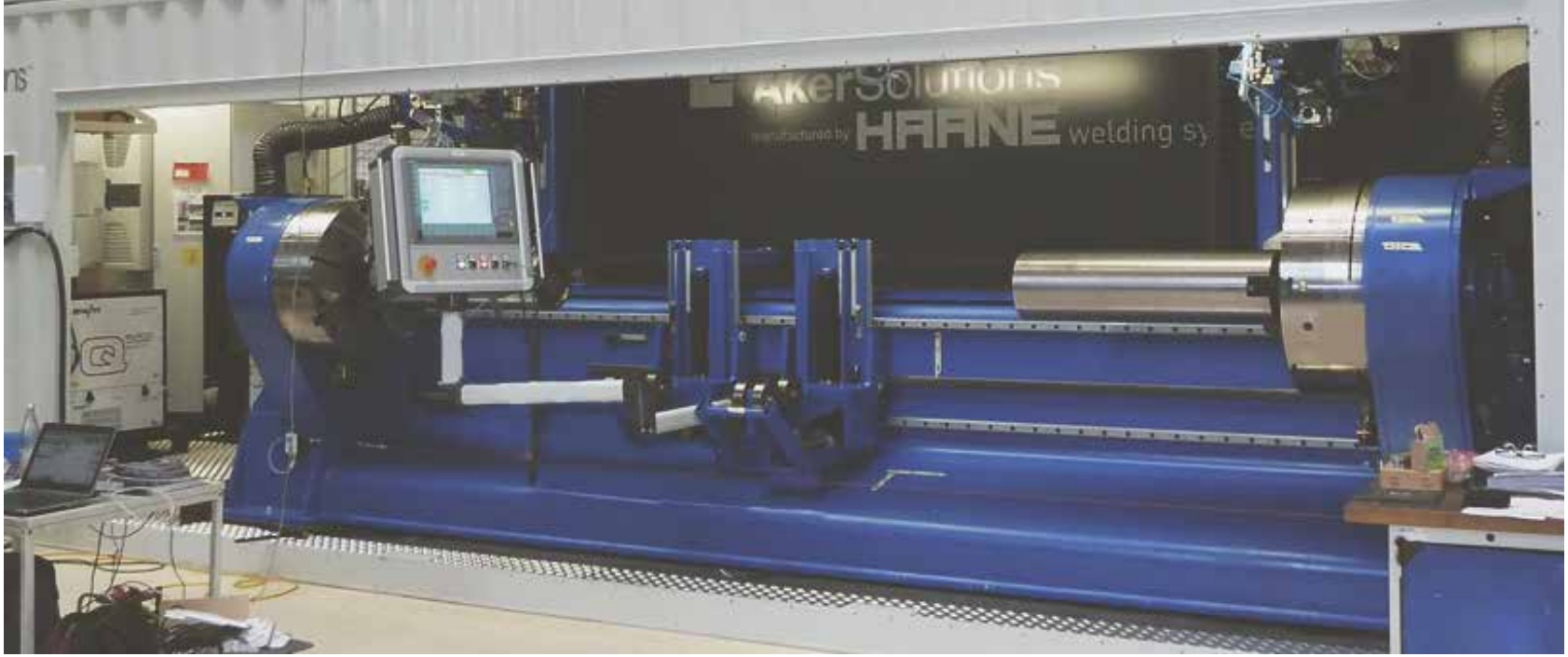
» Welding head positioning speed: 40,000 mm/min

» Laser tracking system

» Equipped with Siemens PLC-System and **HAANE** welding systems controller

» Remote-Service-Facility via satellite

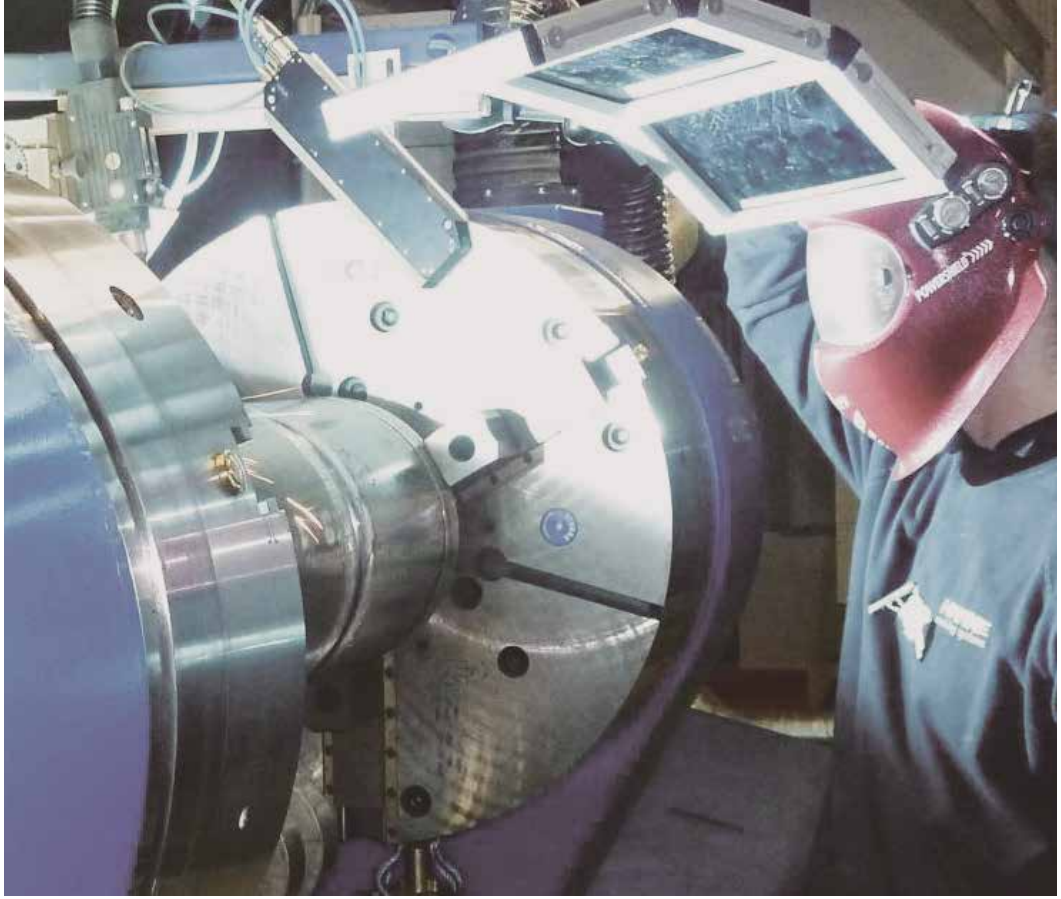
More details you find in our brochure: PIPE WELDING

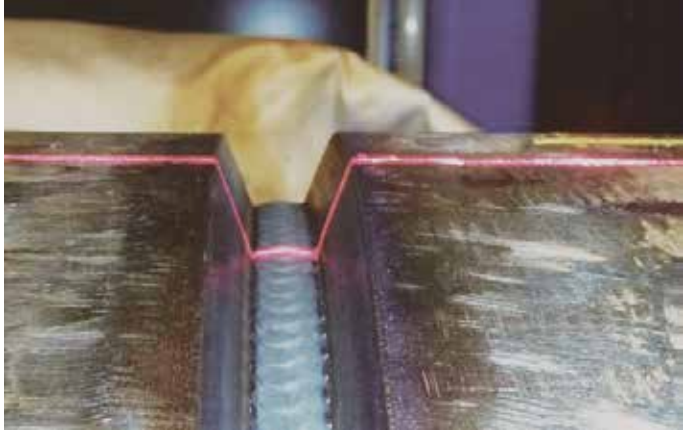


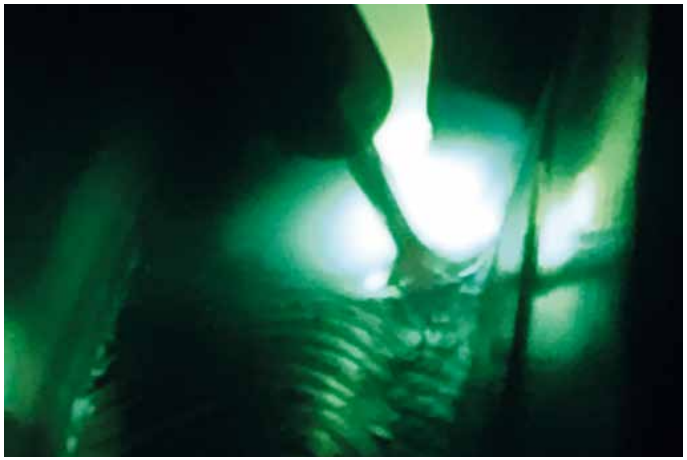
SUBSEA COMPONENTS

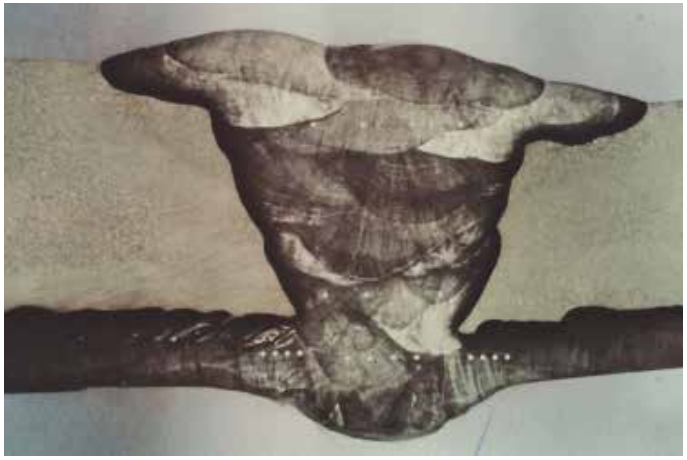
PIPE SHOP

HAANE welding systems provides stationary as well as mobile welding equipment for automated joint welding pipe-to-pipe, flange-to-pipe, elbow-to-pipe, as done here with TIG and GMAW welding process. SAW process is also an option. A combination of two processes is very efficient and fulfils customer's requirement.







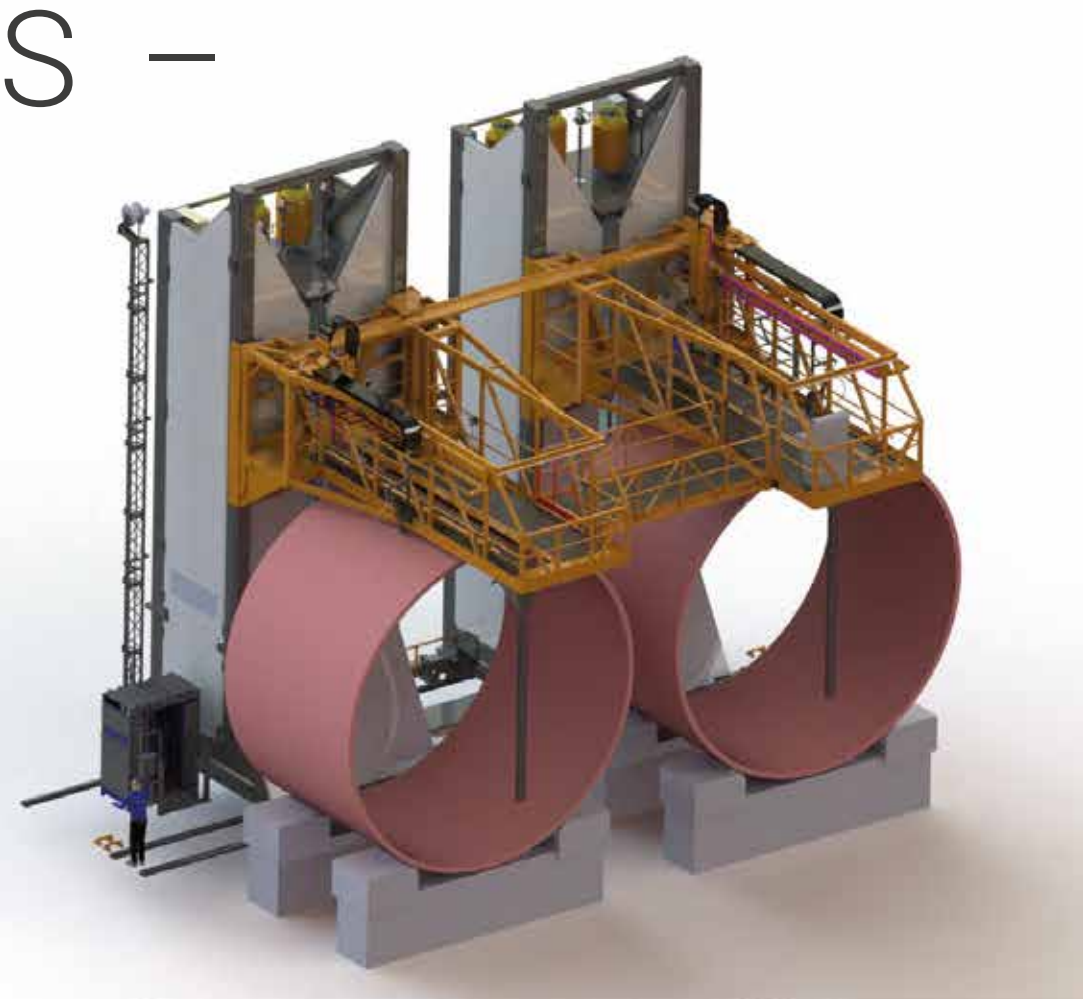


Laser scanners allow for a good seam tracking and purging devices guarantee a low oxide, clean root appearance. Duplex-/Super-Duplex-, stainless steels and nickel cladded carbon steels, alloy steels from the heat-resistant series, all this are eligible materials.

All of this is integrated into a navigable 40”-container, including a small workshop, joint bevelling tools and climate chambers for save storing of welding consumables.

Only one single, voltage stabilized electrical connection point for the entire equipment allows almost all worldwide common line voltages can be fed in.

OFFSHORE STRUCTURES – **LONG SEAM WELDING**



Fabrication of offshore structures. Due to the destructive force of the ocean offshore structures are mostly of enormous size.

Stiff piles of very big diameter and big wall thicknesses need to be manufactured by using extra high strength steel. Of course also the welding must be of best quality and at the same time quick and cost efficient.

When it comes to longs seam welding the key to success is taking away idle times and increase the duty cycle, the arc time, by implementing automation to a maximum limit.

HAANE welding systems delivers extra big size welding platforms, save and ergonomic, best workmanship following the EN-regulations, CE-certificated.

» Easy access

» Wire feeding by big size drums or coils, including endless feed ability options

» Never stop flux feeding systems

» Slag disposal systems

» Automatic joint tracking

» Welding data management, WPS data is sent from remote welding office to each single machines, real data goes back for follow up and store at quality management .

» One operator running several welding stations

OFFSHORE STRUCTURES – **CIRCULAR WELDING**

Nowadays, if an offshore project has been approved and is being started, the investors want to get the installation working as quick as possible. Time is money.

But there are offshore structures of tremendous size, very big diameters and wall thicknesses up to 150 mm. A lot of welding needs to be done within a very short time. In order to achieve this you have to pull out all possible stops.

The fit-up must be optimized and the welding must be most efficient by using narrow gap solutions, increasing the weld deposit to maximum, bringing ancillary times to a minimum and boosting up the arc times.

HAANE welding systems delivers huge welding platforms with several multi-wire welding heads working at the same time at the same workpiece observed by one operator only. A very high degree of automation makes it possible to achieve the requested productivity.

A telescopic boom extends up to 12.000 mm into the pile, which leads in production to an optimum balance between fit up job and welding job for highest efficiency.

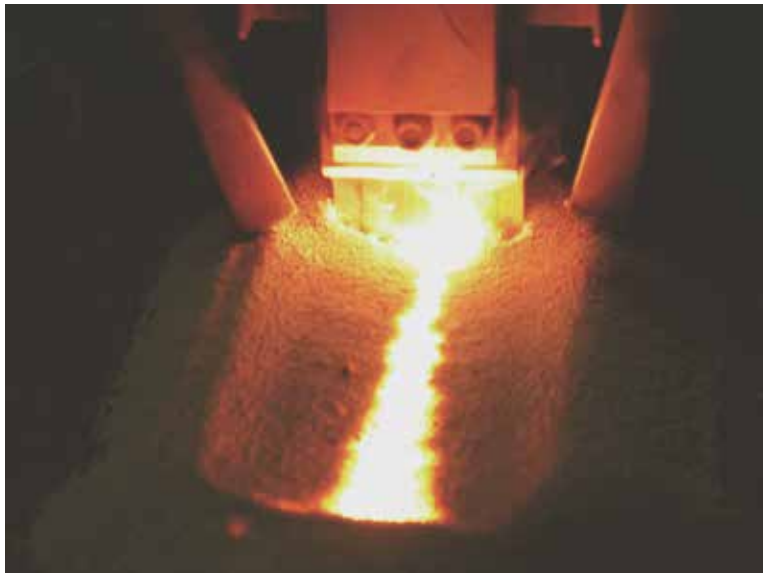
WELD OVERLAYING SYSTEMS - **SURFACING**

Weld overlaying welding is usually understood to mean the application of an additional layer to a metallic base material using a welding method with the aim of obtaining a different mechanical or chemical property from the contact medium than the base material. As a rule, this is a higher wear resistance against abrasion, erosion, cavitation or corrosion.

However, weld overlaying can also be a forming welding, both for repair purposes, i.e. For the restoration of a worn out contour, as well as for the production of new parts, where as an additive process the final contour of the finished part is produced very economically by local material increases not by removal of the large residue but by adding the small elevated region.


HAANE
welding systems
laser overlay welding
HAANE


HAANE
+P01
HAANE



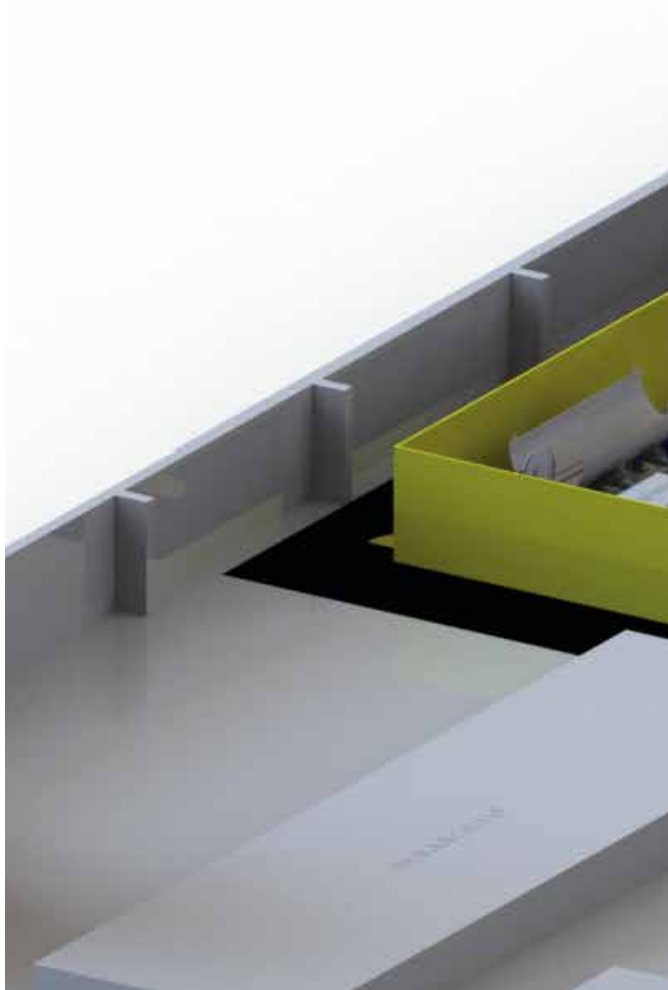
The type of material to be applied (e.g. manganese hard steels, cobalt base alloys, stellite, stainless steels, nickel base alloys, etc.) is determined by the contact media and the prevailing operating conditions such as pressure and temperature.

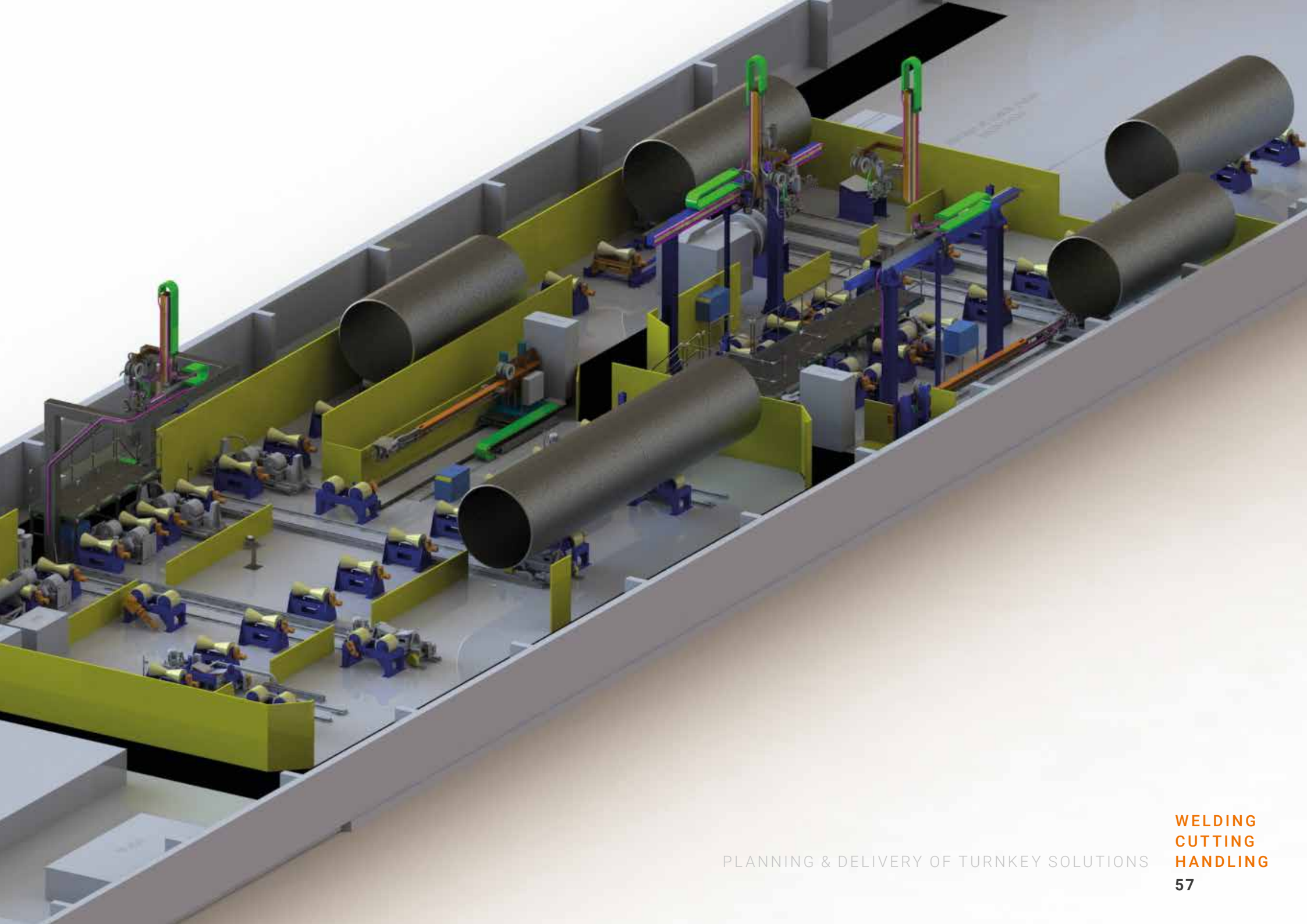
HAANE welding systems uses all current and modern welding processes in order to design complete, custom-tailored production systems for your welding technology.

PLANNING AND DELIVERY **OF TURNKEY SOLUTIONS**

HAANE welding system offers design studies and factory layouts for your newly planned or reorganized production line. And we can make it real.

We deliver turnkey solutions including the entire equipment that is needed for your manufacturing process, from plate cutting up to NDT-testing equipment with all steps in between.





PROCESS DEVELOPMENT & CONFIDENTIALITY

If you want to optimize a process of your production apart from the mainstream, but in any event you want to keep it confidential: Please contact us.

» We are the right partner to help you face your individual challenges.

» We are competent and discreet,
and we know how to handle a confidentiality agreement.

» We can help you to optimize everything
around your production process.

» If you need a specific solution, let us know – our experts will find it!


CONFIDENTIAL

All-round support during and after the installation of our systems

HAANE welding systems does not only supply individual machines, but also complete installations as well as turnkey manufacturing lines. Whatever you have ordered, we offer our further support in the form of teaching and training, production support, or process optimization after commissioning.

Spare and wear-off parts list management

You will receive detailed documentation on the supplied systems, including spare and wear-off parts list, in which the individual components are clearly presented and easy to identify.

Standard parts from electrical engineering, drive technology, pneumatics and hydraulics, we keep the spare-parts list open for you, ie. the original manufacturer and their component identification are indicated openly. You can then decide where to order the spare part. On request, we can provide you with a recommendation for a spare parts set.

In addition, if the plant is in operation, we are happy to come to you to work out an individual stock list together with you.

AFTER SALES
SERVICE

HELP & **REPAIR**

Something is not working out? We can help! Via our service hotline by telephone or email an initial consultation can take place, which limits the problem or perhaps already solves it.

The next step is remote maintenance. We usually equip our welding systems with remote maintenance modules in order for us to be able to access the machine in case of a fault, by internet. Many problems can be solved this way. If not, then experienced service masters will come to you. A worldwide procedure is possible, on land and water. In addition to their professional qualifications, our fitters also receive training in safety at work

» SCC**
» Norwegian offshore survival training
» Helicopter underwater flee training
» Netherlands emergency reaction training
» Emergency breathing system training

We also carry out repairs in our own workshop. This is a cost-effective alternative, if the plant or machine parts are transportable.

OVERHAUL
& UPGRADING

Through our own workshop and our qualified personnel, we are able to carry out repairs and extensive retrofits, upgrades, as well as modifications.

It is true that the entire electrical installation, including the drive system, must be replaced, especially in the case of very old systems due to technical progress in drive technology and the new control systems for the safety of the machines. Another reason to retrofit is to obey the newest safety regulations. Steel construction and several components can often be reused after an overhaul. This results in a cost and time saving compared to a new instrument, especially for customized machines.

Please ask us, we are happy to provide consulting for you to take the right decisions.


Certificate

Standard: SCC**:2011

Certificate Holder: HAANE welding systems

HAANE welding systems GmbH & Co. KG

Scope: Design, distribution, production and assembly of welding and handling equipment

Proof has been furnished by means of an audit that the requirements specified in the Safety Certificate Contractors (SCC) regulation (2011 version) for a safety, health and environmental management system are met.

The due date for all future audits is 12-00.

Validity: The certificate is valid from 2015-01-15 until 2018-01-08.
First certification 2012

2015-01-08

DAkkS

TÜVRheinland


Certificate

Standard: ISO 9001:2008

Certificate Holder: HAANE welding systems

HAANE welding systems GmbH & Co. KG

Scope: Design, distribution, production and assembly of welding and handling equipment

Proof has been furnished by means of an audit that the requirements of ISO 9001:2008 are met.

The due date for all future audits is 12-00.

Validity: The certificate is valid from 2015-01-15 until 2018-01-08.
First certification 2012

2015-01-08

DAkkS

TÜVRheinland

INSPECTION & **MAINTENANCE**

With the documentation of our machines, you receive recommendations on the maintenance and inspection intervals. Feel free to ask us to perform regular maintenance and inspections for you.

This can also include a calibration of the overall system taking into account DIN EN 50504 and DIN EN ISO 17662. You will then receive a corresponding calibration certificate from us.

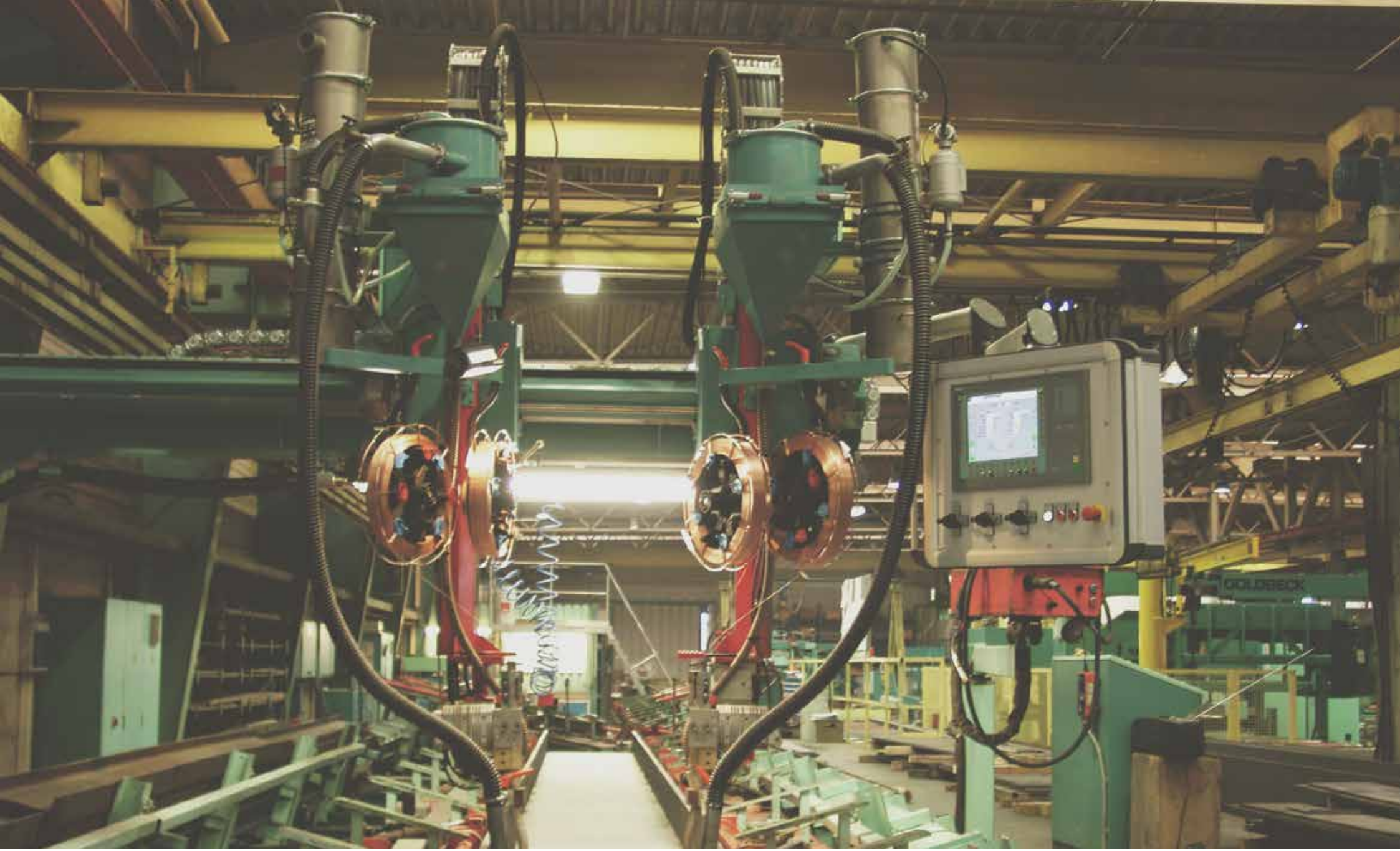
Often and always more often, our components themselves provide information that point out to a necessary, preventive maintenance to conduct a machine runtime extension.

ROBOT & **GANTRY SOLUTIONS**

Gantry for laser robot welding with a track lenght of 36 m

Robot plama cutting of complex 3-D pipe contours

GMAW robot welding of stagnant turbine housings



Gantry for SAW welding of steel girders for structural engineering

COOPERATIONS, PARTICIPATIONS & DISTRIBUTORS **WORLDWIDE**

KLANN
AUTOMATISIERUNGSTECHNIK

» Automation and drive concept
» Automation of rolling mills and steel strip plants
» Retrofitting and upgrading for existing plants
» Control, regulation and automation systems of processing plants
» Hard and software-engineering
» Assembly, commissioning and service
» Safety engineering

HWS
ENGINEERING GMBH

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46325 Borken-Weseke
Germany

HAANE iSAM

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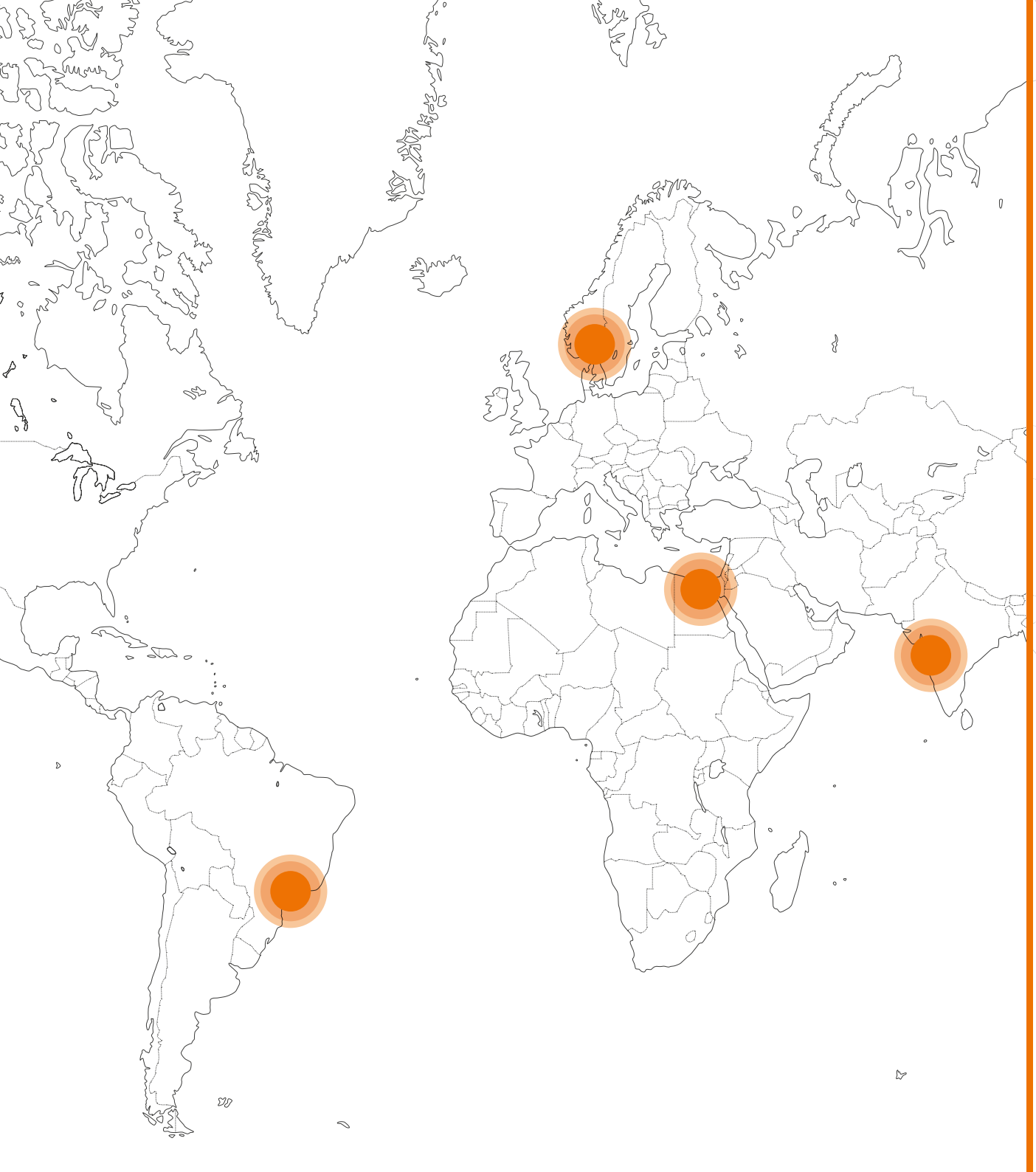
Mumbai – India

iSAM HWS Holding GmbH
Mülheim an der Ruhr · Germany



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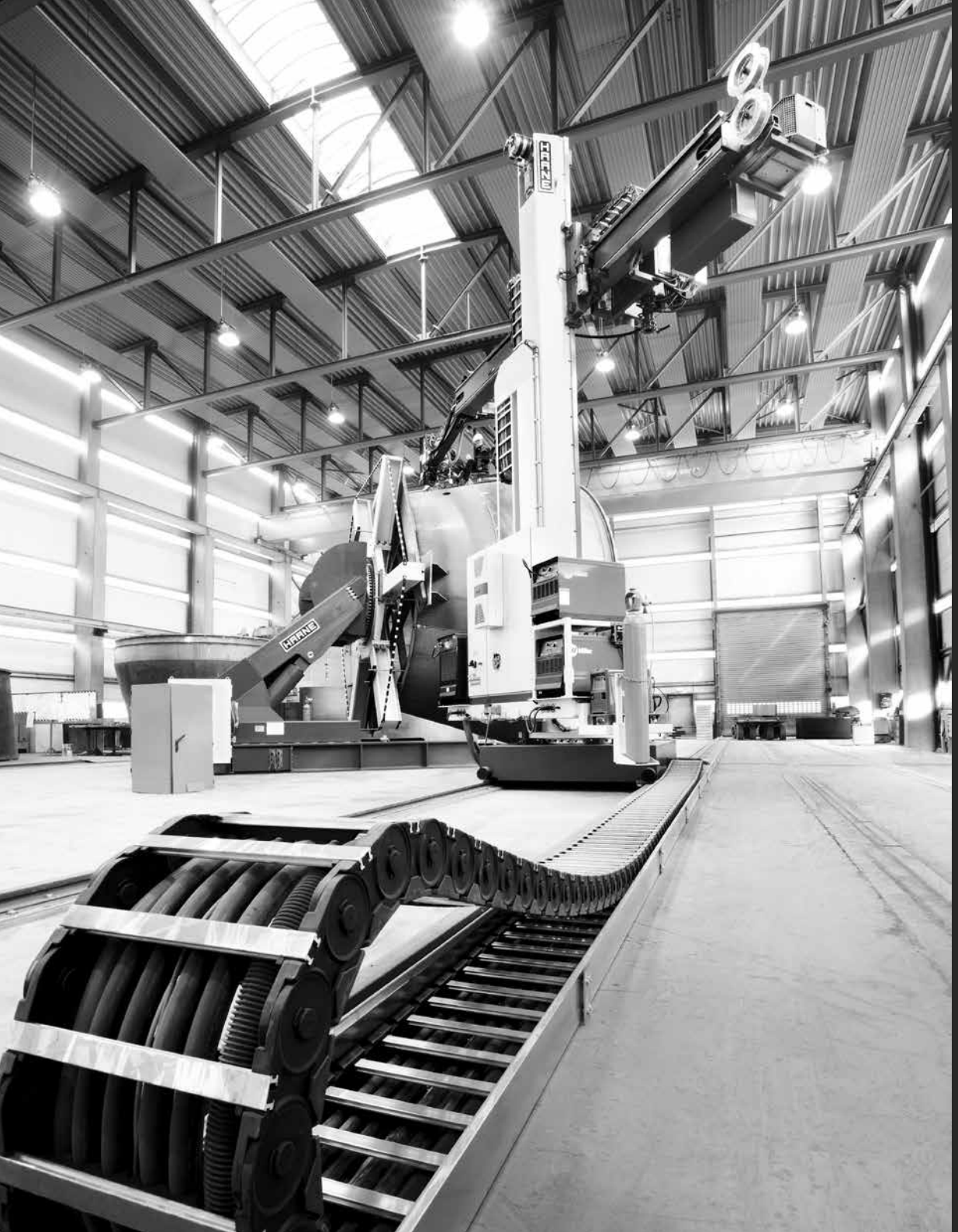

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WELDING / CUTTING / HANDLING
WELDING AUTOMATION – INNOVATIVE & CUSTOMIZED SOLUTIONS