

TURNKEY PIPE-SHOPS

Our fully customized pipe-shop solutions will boost your efficiency, regardless of whether your projects are ships, offshore rigs or industrial plants.

In order to remain competitive in a global market, it is essential to fabricate cost-efficiently without making sacrifices to quality. This means reducing fabrication costs and time as much as possible, as well as using modern machinery at maximum capacity.



In order to optimize efficiency, however, it is important to consider three interdependent aspects of the fabrication process:

- ▶ Data preparation – how are the data generated and transferred to the machines?
- ▶ Workflow and logistics – how does the material get to the machines in time?
- ▶ Machine capacities – are the machines in the shop the correct ones for the task?

Due to the complexity of this task, 3R solutions offers project planning and implementation for automated pipe-shop turnkey projects. With more than 35 years of experience and references around the world, 3R is a reliable and qualified partner for your pipe-shop improvement needs.

▶ Each pipe shop is unique. This is why it is important to have an individual concept for every project. Because of this, 3R solutions conducts an in-depth case study and analysis at the beginning of each project. This way it is possible to determine the optimal machines for each task, as well as the requirements in terms of storage and transport systems.

▶ Even if no turnkey project is required, the 3R analysis can still point out ways to improve fabrication, either by changing individual processes, or by integrating the software system.

▶ 3R solutions will coordinate the purchase, transport and commissioning of all transport systems and machines. Rather than having many different points of contacts, the customer only has to deal with one person from 3R, who will resolve all issues and challenges on site.

▶ Due to the close cooperation 3R solutions has with leading machine manufacturers, it is often possible to customize the machines in order to increase efficiency. These customizations can include physical changes to the machines (machine dimensions, locations of components), as well as changes to the data input, in order to integrate them fully into the pipe shop system.

▶ Every machine in the pipe shop is connected to the centralized database. The 3R software provides all required fabrication data in a format that the machine can process, so the operator only needs to confirm the data on his screen and initiate and supervise the machine process. After the spool has been processed at one machine, it is automatically transported to the next station in the process chain, while the status in the database is immediately updated.

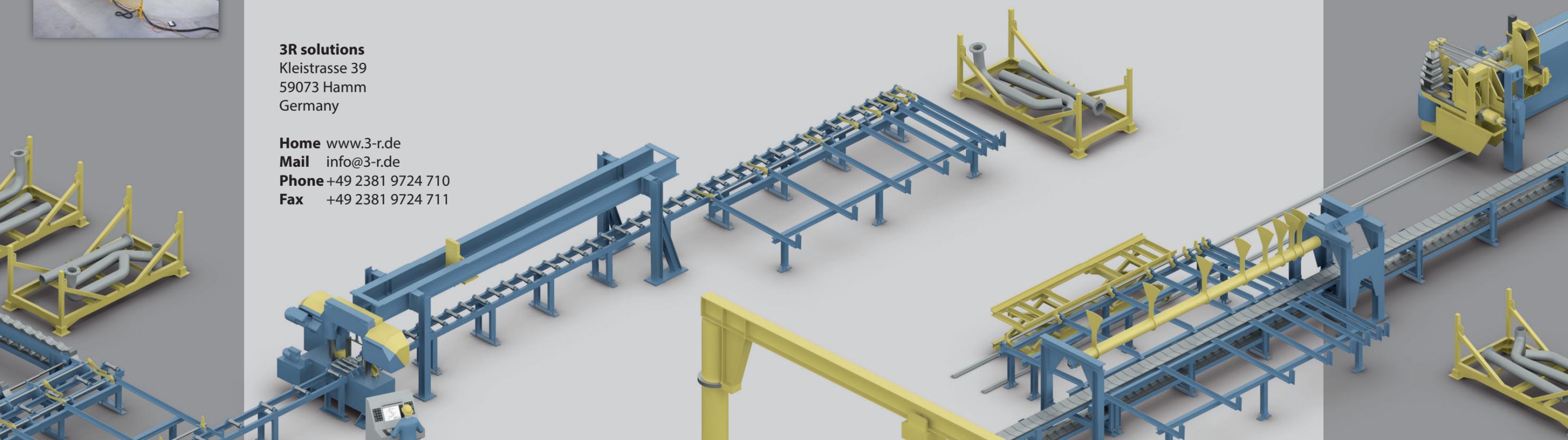
▶ During the project the customer is fully involved and their input and ideas are always considered. In case a customer's idea can be implemented without disrupting other processes, 3R will be happy to do so. If a suggestion turns out not to be feasible, 3R will discuss this with the customer, in order to find a way to implement the suggestion in a way that can be realized.



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- ▶ In-Depth Analysis
- ▶ Individual Concept
- ▶ Machines from Leading Manufacturers
- ▶ High Degree of Automation
- ▶ Integrated Software
- ▶ Warehouse Interface
- ▶ Automated Transport of Material
- ▶ Post-Processing Analysis of Projects



PIPESHOP EXAMPLE

This very basic layout of a pipe-shop demonstrates the basic principles of setting up an initial pipe-shop concept, which will be further refined in cooperation with you, our customer. However, even a good layout requires sophisticated software in order to realize its full potential. We at 3R offer you both software and hardware, allowing you to maximize your efficiency.

At every machine and workstation there is a PC terminal that is directly connected to the central database, in which all fabrication information regarding pipes and fittings is stored. Regardless of whether your projects are ships, offshore rigs or industrial plants, the fabrication status of every spool is updated in real time, giving you current data at all times regarding your progress and output numbers.

PIPE DISPENSER

In order to store as many pipes as possible on as little space as necessary, the use of a high-rise pipe dispenser is recommended. Hundreds of pipes of different diameters can be loaded by a single operator and are automatically retrieved upon request by one of the cutting machines.

FLAME CUTTER

For pipes that require welding seam preparation (V-bevels), saddle cuts or holes for branches, a flame-cutting machine can be a significant benefit, as the CNC-controlled movement axes allow for both simple straight cuts as well as complex miter and bevel cuts. Whether the machine cuts with plasma, oxy-fuel or both, it is a viable machine in any shop.

SLIP-ON FLANGE WELDER

Saving time and money is easy when you can take care of four welding seams at the same time. This machine has four welding guns, making it possible to simultaneously weld the inner and outer seams of two flanges. Flanges will always be plane parallel and rotated correctly.

V-GROOVE WELDER

This versatile machine is capable of welding different kinds of fittings to pipes. It is possible to weld neck-weld flanges, elbows, t-pieces, or reducers without any need for tack-welding, thanks to an innovative internal clamping system that keeps the fittings and pipes in position.

MANUAL WORKSTATION

There will always be work steps that cannot be automated. Thanks to our software it is easy to keep track of the daily workloads and the fabrication status of all spools, as well as plan a balanced and efficient workflow. Special equipment (e.g. for flange positioning) reduces work times significantly.

SHOT BLASTER

In order to ensure optimal surface quality for further processing, and to clear the pipe of rust, scale and dirt, a shot-blasting machine is positioned in between the pipe dispenser and the cutting machines. This way every pipe is cleaned prior to processing, regardless of the time it spent in the dispenser and what processing steps are planned.

BAND SAW

This high-powered band-saw ensures precise, clean and even cuts. In order to avoid manual measuring and marking (which is both time consuming and inaccurate) a measuring track with length arrestor is added, significantly reducing cycle times. For high-volume fabrication multiple band-saws may be required.

LOADING CART

While some smaller pipes can be loaded into the bending machine by hand, longer and heavier pipes cannot be moved that way. To save some time compared to using a crane, a height-adjustable loading cart is ideal, as it can be used to move the pipe to the precise position needed to load it into the machine.

CENTRAL DATABASE

The central database is connected to every machine and workstation throughout the pipe shop. Information is constantly transferred to and from the database.

SPS & SOFTWARE CONTROL

BENDING MACHINE

As bent pipes cannot be transported with automated conveyor systems, the bending machines are typically located towards the end of the line, making bending the final process for most spools. The number and configuration of the machines is dependent on multiple factors and should always be discussed and evaluated prior to purchasing a machine.

