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Automation in Pipe-Spool Fabrication



Pipe-spools are the backbone of many industrial projects, from oil rigs to carrier vessels to refineries. And yet a lot of pipe-shops are still operated using methods and mentalities from the past.

- Pipes and material are commonly moved by crane, forklift or trolley – the results are long idle times at the machines while they wait for material
- Work orders and drawings are printed out as hardcopies and passed from machine to machine – this makes it hard to track and trace the status of individual spools. In addition all reports and QC results have to be entered manually into the filing system
- Each process is seen as an autonomous and independent unit, separate from all others – this makes it hard to improve the process flow, as improvements to one

machine may not solve problems that are actually rooted in a different process

Because of this, pipe-spool fabrication is often seen as very costly and man-power intensive. And since a lot of industrial projects require small batches of a lot of different types and geometries of spools, some shop managers feel that automation is not feasible for their fabrication. However, by using careful planning and the right process, it is possible to automate even small batch fabrication, and achieve significant improvements in efficiency and traceability.

3R solutions from Germany has specialized in providing turnkey pipe-shop solutions for more than 40 years. They have planned and executed projects all over the world, from Europe to the Middle East and South East



Asia, setting up some of the most modern and efficient installations in the world.

The key to 3R's process is to conduct an in-depth analysis of the customer's requirements, and then work closely with leading manufacturers to offer an optimized solution for their client. With a combination of modern processing machines, automated transport, and a software system to plan, control and document all fabrication processes on the shop floor, they can boost a shop's efficiency by a large margin.

Rather than trying to improve individual processes, 3R looks at the entire process flow, and the interdependencies of the various machines. Each machine is planned and placed not only under consideration of its own performance, but also of its impact on other processes.

Automated transport reduces the amount of people tasked with pipe handling, reducing idle times at the machines at the same time, because as soon as the machine is finished with one pipe, the next is already available. And all processes are monitored by the control software, which gives the shop manager complete information awareness, whether he wants to know the location of a particular spool, the utilization of a machine over time, the qualifications of a particular welder, or the required materials for his next shift.

It is by streamlining the entire fabrication process, rather than by trying to improve single machine processes, that 3R solutions can help pipe shop managers achieve their goal of efficient fabrication in a "smart shop."

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