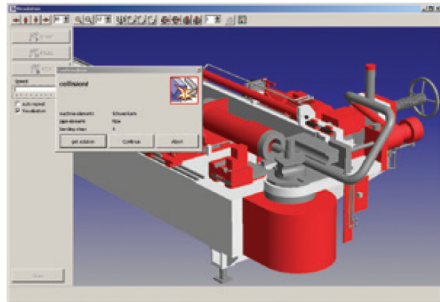


## Simulating the bending process

DEPENDING on the application, bending can be a faster and cheaper alternative to welding, which makes the investment in a pipe-bending machine attractive for many companies. Beyond the savings in fabricating time and material costs, additional savings on NDT and QC can lead to increased efficiency and productivity in fabrication.

There are additional ways to maximise the benefits of a pipe-bending machine, however, and this is where the right software application is of importance.

With the right software, the operator can easily generate or import pipe geometries and simulate the bending sequence, which allows for the detection of potential collisions or other problems



*Among other features, RONI Kolli7 can detect potential collisions*

(eg bends that are too close together) before the pipe is scheduled to go into fabrication.

In the case of a collision, the software will attempt to find an alternative bending sequence, which can vary depending on the complexity of the spool and the capability of the machine. From a simple reversal of the bending order (last point first) or the rotation direction to a change of the bending direction on multi-stack machines, RONI Kolli7 from 3R solutions will test a number of scenarios for feasibility.

In addition to simply checking for collision, RONI Kolli7 can generate the required CNC data, so the operator at the machine knows exactly what to enter. In many cases this data can be provided in a format that the machine can process, so the operator only has to confirm the data on the screen.

Since the pipe retains a certain amount of elasticity, it will try to return to its original shape after bending. Therefore, in order to achieve a specific angle, the actual bending angle at the machine has to be slightly larger, so that after springback the pipe

has the desired shape. In addition, rotary draw bending results in a certain amount of stretching, so the last segment of the pipe spool is a little longer.

In RONI Kolli7, the operator can create and manage a record of all materials and dimensions that are processed on each machine.

By making test bends, measuring them and tracking the results, it is possible to create a material master file that enables the software to calculate the required adjustment to bending angles and cutting length, so the bending result matches the drawing.

3R solutions states that a pipe-shop that integrates RONI Kolli7 into its processes can achieve increases in efficiency, as the software can be used to: reduce the danger of collisions; confirm that a pipe is bendable without the need to create a wire model; compensate for material factors; provide CNC data for the bending process; prepare freely customisable work sheets/reports for the operator; simulate a bending process for flanged pipes and calculation of flange rotation; and calculate potentially required extensions.

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