

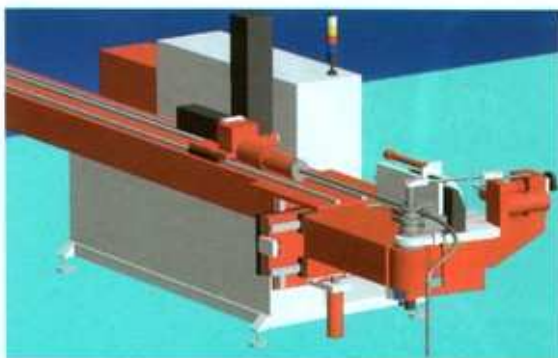
## Advanced software solutions for tube bending

3R software solutions, Germany, has more than 30 years of experience as a developer of software for the tube bending industry. The company works closely with German and international manufacturers of bending

machines, and its software can be found in the construction departments of most German shipyards.

3R's bending simulation, RoniKolli 7, is an example of user-orientated software. It allows the operator to import tube files from a variety of construction programs, or to create a new tube project using either coordinates or bending values.

3R's RoniKolli 7 can model the user's bending machine and tools.



The included material editor program can be used to create a database of material traits, enabling overbending and springback calculations to be automatically integrated into the calculation of bending values.



The software provides a visual representation of the whole bending process.

RoniKolli 7 not only offers bending values and 2D/3D visualisation of the tube, but of the bending process itself. Using the attached tool and machine editors, a detailed 3D model of the user's bending machine and tools is created, and used for the graphical representation of the bending process.

Collisions are detected and displayed, and the program independently searches for solutions and alternatives to avoid collisions. These solutions can include correction feed, alternate rotation direction, and reversal of the bending process, to begin with the last bend instead of the first.


The simple operation of the editor programs makes it possible to create tool models within minutes, and a sufficiently detailed model of the machine within a few hours. The model can be adapted to reflect later modifications to the machine itself.

The software can simulate single-head or double-head machines of any size, from machines for small diameters to induction bending machines. Left or right-bending, multi-level tool stacks and roll bending present no problems for the program.


Once a tube has been tested for collisions and its bending values have been calculated, it can be exported to the machine. Worksheets with all relevant data can be created, as a reference for the machine operator.

The software is currently available in six languages (German, English, French, Russian, Japanese and Spanish), but a language editor feature makes it possible to quickly translate the program into the user's language, allowing operators not fluent in a foreign language to operate the program.


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