COPRA® RF 2017

Automatic Tube Mill
- Calculation of the roll forming steps is done according to predefined strategies and can be adapted to your requirements
- Automatic calculation of rolls based on the machine parameter, the tube diameter and the station sequence
- Comfortable creation and maintenance of any number of variants for round and rectangular tube mill projects
- Effective adjustment of a basic roll tooling for different wall thicknesses

Cage Forming
- COPRA® RF allows for a modeling of various types of straight edge forming systems due to its parametric structure
- The lineal beams are either predefined or - if there are individual support rolls - each roll and respective position is defined in specific database tables
- Adaption of cage angle and orientation in a table or directly in the 3D model
- Extrusion of the cage position from the 3D model and direct import into COPRA® FEA RF

Round 2 Shape
- COPRA® RF for shaped tubes allows a quick and accurate design of the intermediate shaping steps from the round tube to the final shape
- The individual calibration steps are calculated and optimized as a basis for the following roll design
- The degree of deformation as well as the distribution of the material reduction can be predefined by the user
- The calculation assures the maintenance of the correct bending positions
- The verification of the shaping steps with COPRA® FEA RF is crucial due to the unpredictability of the forming behavior in air bending

COPRA® RF WireRolling
- Automatic definition of initial wire diameter
- Automatic or interactive definition of rolling stages
- Manual modification of calculated rolling stages
- Fully automatic roll design based on the shaping steps
- Effective design features for customized roll tool design
- Automatic generation of material lists, NC- and DXF- contour data
COPRA® FEA RF - The Standard in Roll Forming Industry

data M roll form specialists profit from over 20 years of FEA simulation experience in research and industry; thus contributing to the software’s continuous advancement. Optimized for roll forming operations, COPRA® FEA RF is easy to use as no FEA expertise is required for the handling of the software and evaluation of the results.

Automatic FEA model creation within seconds
- No time-consuming, pre-processing or difficult post-processing operations required
- The availability of the roll design in COPRA® RF simultaneously provides the FEA model
- Automatic roll import from basic AutoCAD drawings or 3rd party roll design software facilitates the creation of the required FEA model
- Analysis of roll forming process and connected process steps
- Easy optimization of roll form tooling by better understanding of the forming process
- Automatic mesh preparation for pre-, post- and inline punching
- Simulation with rotating rolls and friction to understand interaction between stations

COPRA® FEA RF - Advanced Restart
- Allows a remeshing as required for roll forming applications
- Helpful tool for sections for which the definition of the correct bending positions is difficult to define – e.g. the simultaneous deformation of multiple bends
- Significantly improves the quality of the simulation results
- Avoids time-consuming search for the correct bending position
- No need to start a simulation from the beginning and make use of the already simulated stations
- Inline- and post-punching supported
- Mesh adaptation at any point of simulation
- Simple restart of a simulation after power cut off
data M - Integrated Roll Forming
Solution Concept

Roll formed tubes, profiles and wires are used for many different applications in various industry fields, while the requirements of each line of business vary greatly.

data M offers with its COPRA® software an integrated model of all operations and processes the material undergoes. This is an essential prerequisite assuring simulation results and practical results are matching. It covers parametric design, 3D options, roll tool management, and high-end finite element (FEA) simulation, including pre-, post- and inline operations such as:

- Punching
- Welding
- Inline bending
- Winding
- High-frequency welding
- Hydroforming
- Sweeping
- Stretch Bending
- Crash Simulation
Quality Management with COPRA® ProfileScan

Completing the work process of roll profile development, data M developed a profile scanner and a roll scanner.

- High-precision laser inspection
- Significant reduction of time to scan
- Complete integration into COPRA® RF and COPRA® FEA RF
- Simple tools to define jobs and tolerances
- Automatic scanning report
- Ideal for quality management

Integrated Roll Management

The new COPRA® RF “Regrind” function allows efficient reworking of roll tools. The database module COPRA® RLM (Roll Lifecycle Management) as well as the COPRA® RollScanner form an important entity here:

- Scanning of the roll contour with very high accuracy
- Automatic upload of the roll contour to the COPRA® RLM database which allows immediate use with the COPRA® RF design software
- COPRA® RF Tube Design Module calculates the required reshaping of the tube rolls by identifying the roll with the maximum wearout
- For direct comparison, the scanned and the designed contour can be displayed overlying in COPRA® RF
- Due to the integrated parametrics roll width and diameter can be adjusted
- The acquired data can be used for the reworking of a complete roll set; Save time and expenses through flexible reusing of discarded rolls
- COPRA® RLM offers intelligent roll management features; The new feature SmartSearch allows a fully automatic real-time search during the design process
data M “Rollforming the Future” – Research and Development at the Highest Level

Since its founding almost 30 years ago data M has been striving to offer innovative, high-quality and state-of-the-art products and services to the roll forming industry. Research and development has thus always played a decisive role in our daily work.

Due to its future-oriented approach data M has ever since been engaged in many research projects and has worked together closely with renowned universities and development partners around the world.

Currently data M is proud to be partner of the following projects:

**SERVROLL**
(Start: 1.05.2016 / period: 30 months)
“New servo-control, process design and set-up strategy for holistic optimization of roll forming”

**TROPHY 2**
“Thermoplastic, rollformed profiles in hybrid design 2”

The project SERVROLL is implemented in the European research framework „Eurostars“. Its German partners are funded by the German Federal Ministry of Education and Research (BMBF).

In the course of its R&D activities data M has cooperated for many years now as a project owner or project member with prominent partners all over the world including:

PtU Darmstadt, Deakin University Australia, IFUM University Hannover, KUAS University Taiwan, Dalarna University Sweden, NCUT China, Ohio State University USA, IUL TU Dortmund, Mondragon University Spain, LFT University Erlangen, TU Munich, Fraunhofer Institute IWU Chemnitz, LZH Hannover.

Data M is a member of the following associations:

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