February 2005

COPRA® RF 2005 Release Notes

79 New Features available compared to COPRA® Release 2003

COPRA® Release 2005

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COPRA® Release 2005

The version COPRA® RF 2005 includes a complete project and document management of roll formed sections and tubes. Beyond the actual rolls also punch- and cutting dies as well as any documents may be managed. Together with the other possibilities COPRA® RF 2005 is a "Major Release" the software is even more effective and user friendly. COPRA® has been continuously growing in the last years. Please have also a look at our release notes from the past at www.datam.de/en/service-support/copra-rollform.htm

1. What is COPRA®?

COPRA® is the software package for every roll form designer. COPRA® allows the designer to design simple as well as highly complex open or closed shapes in a professional way. It reduces costs for planning, design and engineering and carries the designer through the whole process chain from flower from flower design (bending steps), roll tool design and technical calculations to the simulation of the forming process, stock roll management, CNC manufacturing and quality control. By analysing the strains and stresses on the material during the forming process. COPRA® enables the designer to determine the proper forming process even before the rolls are physically manufactured.

As all other data M programs, COPRA® is very user friendly, easy to learn and guides the operator through the design process. Dialogue boxes offer explanations where necessary. COPRA® runs with AutoCAD and is also available as an OEM version. By using this version, the learning curve is kept down to a minimum as AutoCAD is an integral part of the COPRA® package. COPRA® is state-of-the-art technology for cold roll formed sections – worldwide. It is a standard tool for designers in more than 50 countries.
2. COPRA® RF CADFinder – project management with powerful functions

The target of COPRA® RF 2005 is to work in the context of a complete design workflow and to provide a complete document and project management. The new COPRA® RF Project Manager therefore includes the possibility to manage beneath the COPRA® project and design data also any other document that belongs to a registered Windows application. It is – in other words – a tailor made document management system for the COPRA® RF software package.

What are the features of this solution?

COPRA® CADFinder is a document management system that allows also to organise any files independent from a defined file structure on a storage device. To do so the user creates a nested project structure. The documents can then be assigned to a project in this structure via a document number. The organisation of the documents and the assignment to the physical file path is done by a data base server (e.g. MS SQL Server or an alternative data base with SQL and ODBC support for the multi user version or the MSDE data base in a single user environment).

Furthermore user defined attributes can be linked with projects and documents. This ensures a fast retrieving of documents via specific search functions. These attributes in the COPRA® version of CAD-Finder may also be used to complete the title block information in an AutoCAD template.

Also a structured view of projects (project manager) and belonging documents as any number of flexible working catalogues are available for displaying different search results. From here the individual documents can be opened, modified, completed with new attributes, copied and moved very easy and comfortable. The design of the structured view is similar to the Microsoft Windows-Explorer in order to guarantee an intuitive working in a well known environment.

A revision control and workflow system is also available for the individual documents. So an older version of a document may be – if desired – saved before modifying in order to have access to previous releases of this document. The history of a file may be saved. The link to the respective project is maintained. So for a document multiple work situations may be
saved. The workflow system recognizes if a user works on a document and sets the workflow status to "Modification". In that case any other user may only view the document. When the modifications have been completed the status is set back and the document may be modified by another user. Any number of workflow situations maybe defined by the user.

**Features of the CADFinder Project Management**

1. The CADFinder- Project Management is integrated in the COPRA® Explorer

![Diagram of CADFinder Project Management](image)

2. You may browse between your projects and the belonging flower and roll design within here. All to a project belonging information is saved in one database.

3. The projects may be retrieved as simple as with the Windows-Explorer

4. All project specific information can be well structured saved in a project.

![Diagram of Project Management](image)

5. The project main directory can be located on a local machine or in network

6. Projects can be defined as common projects as well as COPRA® projects.

7. Common projects may be converted in COPRA® projects if necessary.

8. Already existing projects (from previous releases) may be copied and modified.
9. Unique attributes can be assigned to each individual project.

10. Any number of system known documents may be created and managed in a project. This includes CAD drawings as well as text documents, tables, animations and/or presentations.

11. User defined title block information can be linked to every project.

12. The complete history of modifications is available as revisions may be created. This makes sure that the history of revisions e.g. in a roll set can easily be traced.

13. Every document may have a different status during working is done: Modification, Released, Locked or demand for Revision.

14. Drawings that are automatically created by COPRA® - e.g. roll drawings or assembly plans - may automatically be added to the document management system. It is not necessary to add title block information or similar things. This is done automatically by COPRA®.
15. The CADFinder project management is also available as a plain windows application without a link to AutoCAD. So all departments of a company may have access to the most current project data and e.g. print or check the latest release of a customer drawings.

16. With the help of CADFinder repetition parts can be searched and added to a catalogue. The repetition parts found can be directly inserted in a drawing.

17. The content of the CADFinder catalogue may be saved and reloaded when needed.

3. New Feature: COPRA® RF SpreadSheet – flexible unfolding in a table
The Flower Design is a very powerful and robust design tool in COPRA®. Nearly all imaginable calculations may be done with it. Only the modification of the flower could be made a little bit easier. This includes e.g. the modification of the calibration method of an arc in the whole flower or relative modification of bending angles. All these things can be done with COPRA® RF SpreadSheet.
What are the features of this solution?

18. Import of final section via DXF file or design with COPRA® features.

19. User defined templates for automatic definition of predefined strip width calculation and calibration method. This makes sure that the correct company specific settings will be used.

20. Variable display of Bend angle, bend radius and length of an entity. The user defines which values are being displayed. So the table can be clearly arranged and even complex profiles can easily be handled.

21. Fast and easy flower design by entering the individual bending angles in a table.

Adaptive Flower design

22. Profiles with similar geometry can easily be unfolded by adapting the values in the table.
23. Allows also the relative modification of a bending angle in multiple stations. If for example the DTM simulation shows that a bending angle needs to be adapted all following stations can be recalculated and adapted automatically.

The flower is adapted automatically if you change the bend angle. Only one value needs to be changed!

Flower design has never been easier.
24. The profile sections are dynamically displayed in a preview window. The flower will be recalculated as soon as a value in the table has been entered and confirmed. The preview will automatically be updated.

25. Flower-, Element – and Pass number may be switched on and off in the preview.

26. Individual elements may also be activated or modified via the preview window.

27. The entity data and the respective modifications are displayed in an extra dialogue.

28. The calibration method of an arc may automatically be changed for all passes.

29. Bending angle and inner radii may be defined relative as well as absolute

30. Definition of compression or calibration addition with automatic recalculation of strip width and flower.

31. Sheet thickness may be changed for all stations with constant inner radii.

32. Elements and stations maybe inserted and deleted supplementary

33. Dynamic adaptation of section folding point with automatic recalculation of the flower. Definition of a fix point for vertical and horizontal position of a section e.g. the centre point of gravity of the sections.

34. Every table can be saved with a defined name and be reloaded accordingly. This way it is possible to unfold every geometric similar profile using the same forming strategy.

35. The unfolding data can be exchanged bi-directional with the AutoCAD-based version of COPRA® RF 2005. This allows the use of the most effective functions within a project.
4. New Features in Roll Design

**Free definable tool axes**

36. Definition of unlimited number and position of accessory rolls.

37. Length of axes can individually be changed and rotated.

38. The centre point of gravity is free definable and graphically displayed

**Station accessories**

39. COPRA® 2003 allowed adding additional drawing information to every roll via AutoCAD drawings. COPRA® RF 2005 makes it even more powerful by linking AutoCAD drawings to a station.
40. The procedure is very simple: You may add via AutoCAD any additional information after using the command "create station accessories". The drawing information will be linked to the station as soon as the command "Save station accessories" was selected.

41. Station accessories may be modified and extended via the AutoCAD command "edit reference" (same as a double click on the object).

42. Design, displaying and administration of rolls with an undercut and correct creation of the belonging NC-contour.

**Station attributes**

43. An attribute may be linked to every station to define which kind of station it is e.g. driven station, side rolls, welding station or sizing station, break down or intermediate station.

**User defined roll numbers**

44. Depending on a type of station a user defined roll number can be predefined. After that the roll numbers are assigned automatically for each roll. In case of an undesired roll number change there is still the chance to adapt it via the individual roll attributes.
**Ex post inserted stations**

45. Stations and passes that need to be inserted into an already existing design can be marked – and they get automatically a roll number that does not yet exist in the roll set.

**Database-Engine**

46. The new base for the COPRA® data base is now the Microsoft SQL Server (previously Access was used).

47. Available as desktop or server engine

**Save station in database (only Professional Data Base)**

48. If the design of a station is completed it can be directly transferred to the database. Roll number and roll attributes maybe checked and adapted before they are transferred. Identical rolls will have the same roll number, the number will be increased in the parts list.

49. The roll type can be defined when a roll is transferred to the database. The project information saved in data base is used for creating the manufacturing data, e.g. roll drawings, assembly plans and parts list.

50. The content of database may be modified during the saving process.

51. Spacer bounding boxes can automatically inserted depending on machine, machine type, roll type and axis (saved in database).

52. All roll attributes of database rolls may be modified without disconnecting the link to the database.

**Spacers are known automatically**

53. In the past it was possible to insert spacers as rolls, but in this case the information that it is a spacer got lost. A new attribute ensures that spacers are recognized automatically.

**Additional database delete features (only Professional Data Base)**

54. Delete complete order (all to the actual order belonging rolls will be deleted from database – and only these rolls)

55. Delete complete station

56. Single rolls (interactive)

57. Database link of a roll (only the link to the database will be disabled, the roll will not be deleted)

58. Database link of a station
Assembly plan

59. The assembly plan contains all relevant data, especially also roll- and station accessories.

60. The individual drawings of the assembly plan can automatically be administrated in CADFinder and e.g. be found according to drawing number.

61. For each assembly plan a drawing will be created which contains all stations. The individual stations are shown in the layout. Each station may be displayed by simply clicking the belonging layout.

62. Title block data will be completed automatically.

Bill of material

63. All necessary information for the assembly is included in the bill of material.

64. The following types of bill of material are available: Profile dependent, tool dependent, purchase dependent.

65. Output as MS Excel sheet. Template can be chosen and adapted depending on company specific requirements.

66. Bill of material can optional be transferred automatically to CADFinder.

Single roll dimensioning of database rolls

67. The required rolls can be directly indicated for dimensioning (roll number with Wildcards) or been transferred from bill of material.

68. Automatic transfer of the drawings to CADFinder. This allows to easily find again project dependent drawings and documents.

69. The format the file shall be saved in may be chosen. DXF and DWG are available.

70. The reference point of the roll can be user defined.
5. COPRA® FEA RF

Automatic model definition

71. The compression addition is automatically taken into account when calculating the mesh for the individual elements of a section.

72. The end profile section, any other section or all stations may be used as reference for the automatic creation of the mesh of the flat strip.

73. Output of material strains now also in local coordinate system in width-, thickness- and rolling – direction.

74. Sections can be exported as DXF-files from COPRA® FEA RF.

75. Welding addition is taken into account.

76. Optimisation of the FEA model in terms of model preparation, material description, calculation times and analysis tools.

77. Strip will automatically be threaded in critical positions.

78. Restart option: the calculation can be stopped if it is obvious that the deformation or the rolls of a station are incorrect. The rolls can then be modified by the user and the calculation can be restarted at the respective position. For sections being made in many stations this option can save a lot of time.

6. COPRA® General Improvement

Much faster saving of data via network

79. Single stations can much faster be saved in a network by optimising the data model