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▮ radbend

Offline programming and simulation for pressbrakes

Radbend from Radan is the comprehensive offline programming solution for press brakes. Completely integrated with Radan3D, it also provides a full 3D simulation of the bending process.

Offline programming

Radbend enables full and accurate 3D-model simulation of the bending process, including advanced features such as automatic bend sequence calculation, automatic tool selection and automatic finger stop placement, offering simple programming and high productivity.

The ability to program and verify bending operations offline frees up valuable machine time and improves first-off reliability, reducing manufacturing costs. Radbend also eliminates costly mistakes with automatic detection of collisions with both tooling and the machine tool itself.

Radbend is available to provide offline programming and simulation of a wide variety of press brake machinery. Radbend can create full shop floor documentation in print form or a file for viewing on a shop floor viewer and DNC system, ensuring access to only controlled data from production office through to shop floor, resulting in a 'right first time' manufacturing approach.

Highly automated

Radbend features high levels of automation. The system examines the part to be programmed and automatically determines a bending sequence, taking into account part geometry and best machinery practice.

In addition, finger stop positions are set automatically to provide reliable positioning.

Radbend's tooling library can incorporate a tooling manufacturer's complete inventory, enabling non-standard tools to be tested and proven on new products before purchase.

Features include

Automatic bend sequencing

Automated tool Selection

Tool setup optimisation

**Automatic finger stop positioning**

Customisable reports

Support for lifting aids and angle measurement systems

Can be integrated with Radan3D

Press brake independent, Radbend can help you to reduce bottlenecks and costs, whilst increasing efficiency and productivity by enabling you to program and verify your bending operations offline, as well as detecting any collisions with the tooling, finger stops and the machine tool itself.
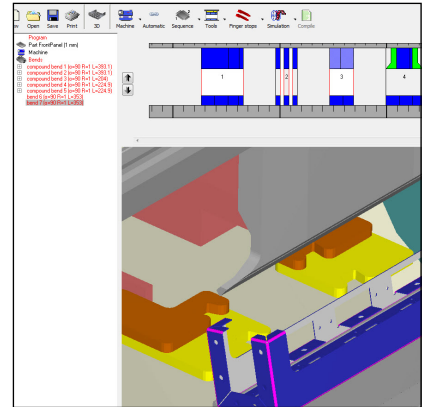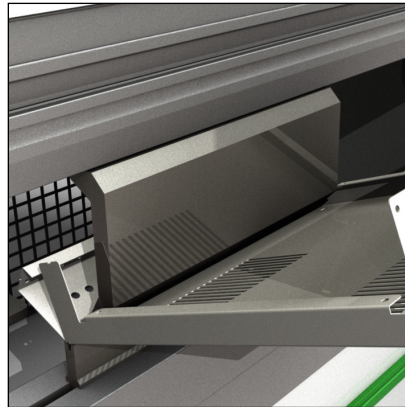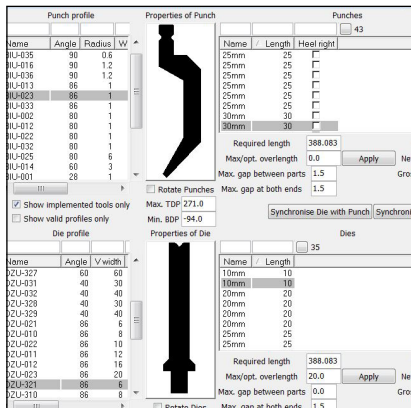
Machine independent
Radbend is totally press brake independent. Users are able to program all of their press brakes from one common interface. This offers great flexibility, where users can quickly try out several press brakes to ensure the right machine for the job.

Data import
Radbend can import data in a range of 2D and 3D formats, as well as having specific plug-in interfaces for well known 3D CAD systems.

Autodesk inventor plug-in
Autodesk Inventor can be fully integrated with Radbend using the plug-in. The Radbend plug-in offers a seamless, accurate and intelligent transfer of data between these two programs.

Taking your part from Autodesk Inventor into Radbend couldn't be more straightforward. Once you are satisfied with your design, simply click on the Radbend icon and your part and associated information gets transported into Radbend.

SolidWorks plug-in
Utilising the Radbend Plug-in, taking your part from SolidWorks, Standard, Professional or Premium couldn't be more straightforward. Once you are happy with your design, simply click on the Radbend icon and your drawing and associated files are seamlessly transferred into Radbend.

Increase productivity
Once your part has been transferred into Radbend you will be able to:

- Select the most appropriate machine tool and the appropriate tools to bend the part correctly.

- Provide you with consequences of your tool set up - expected radius, press depth, etc.

- Automatically position finger stops against every valid face requiring fingerstops.

- Run a full 3D simulation of the bending process, detecting any collisions and potential problems.

- Automatically generate complete shopfloor documentation, including setup sheets.

Benefits include :

- Reduce downtime through fast and reliable offline programming

- Reduce lead times due to improved efficiency

- Reduce the set up times of machine tool from the availability of manufacturing information

- Fewer design errors, due to the 3D simulation contained within Radbend

- Reduce costly manufacturing errors by making use of collision checking

- Machine independent means that you can easily use Radbend on any of your press brake machine tools

- Open up the press brake to a wider audience of employees

- Accurate automatic unfolding, even with imported models

- Increased production flexibility

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: radan3D

3D sheet metal design and automatic unfolding

Radan3D is a high performance and versatile 3D modelling package designed to make sheet metal design and engineering assembly modelling simple.

3D sheet metal design

The software is specifically focused on the rapid creation and modification of 3D sheet metal parts and assemblies. The system understands the attributes of sheet metal and utilises user-definable parameters for precise automatic unfolding.

Based on the ACIS solid modelling kernel and employing modern parametric techniques, it provides design flexibility, and a unique 2D-to-3D method of creating 3D objects.

In addition, Radan3D allows the import of a range of file formats, including Inventor, Solidworks, Catia V4 & V5, SAT, IGES, STEP and Parasolid, as well as the creation of assemblies in the 3D environment.

The Radan3D model can be updated with manufacturing information such as expected radius and setback values from Radbend, Radan's offline programming solution.

Automatic unfolding

Parts can be unfolded directly into the sheet metal part editor, ready for onward processing. This enables a smooth and efficient workflow from design to manufacture.

Unfolding parameters, such as bend allowances, can be controlled independently of the geometry, enabling an accurate development that is based on actual bending machines and tooling to be used in production. This leads to more accurate flat blanks, more accurate folding and ultimately, a higher quality product.

Benefits include :

- Specialised sheet metal assembly design

- Design errors eliminated

- Accurate automatic unfolding, even with imported models

- Increased production flexibility

- High quality data import with optional geometry healing

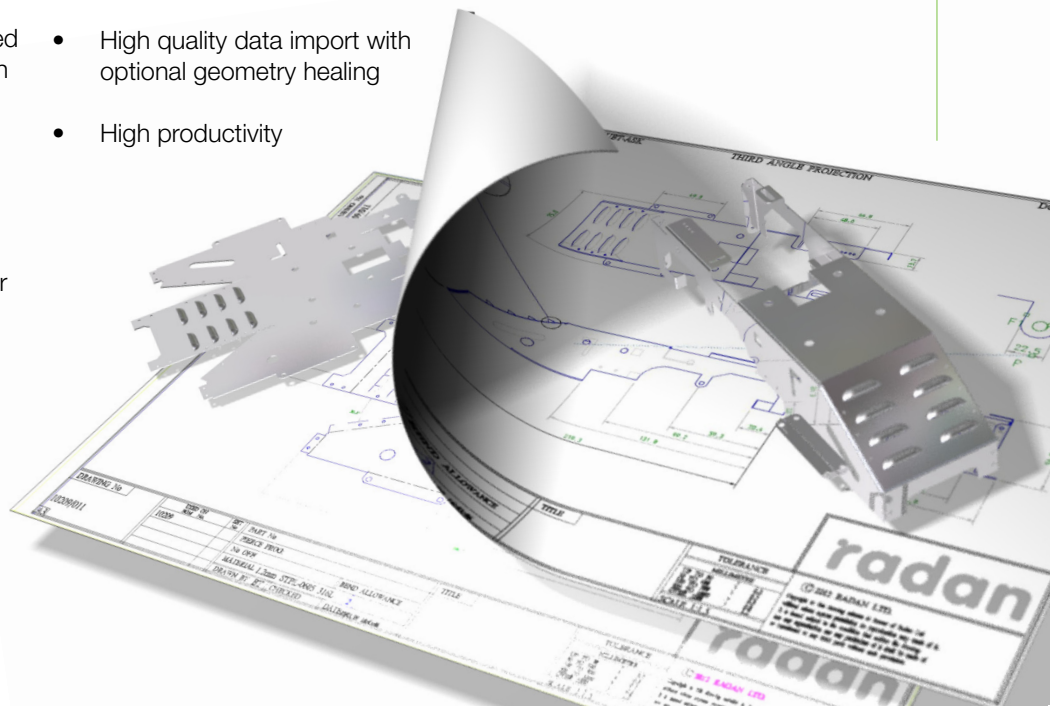- High productivity

Features include

User-defined bend allowances

**Flexible design changes including material thickness**

Automatic, associative drawing elevations

Associative 2D dimensioning on drawing elevations and flat blanks

An integrated component of Radan

Radan3D is a simple to use 3D design tool. It is ideal for the design of sheet metal parts and assemblies. However, it doesn't have to stop there. Radan3D is an all round 3D modelling tool that can handle all of your 3D design and modelling requirements.
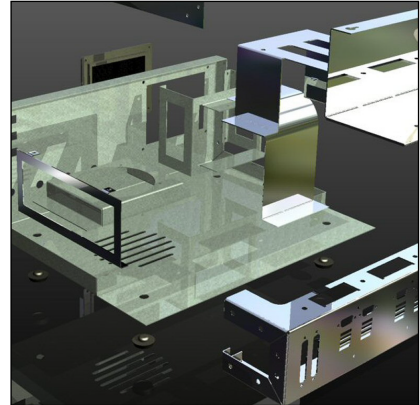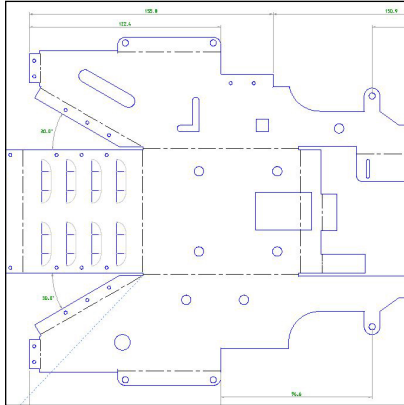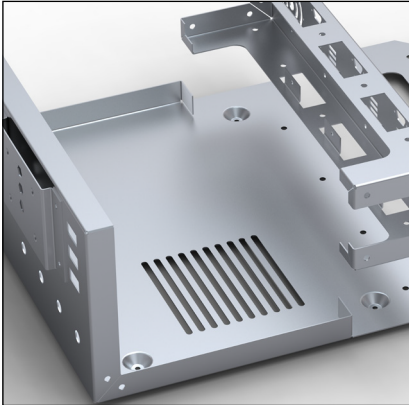
Sheet metal unfolding

The unfolder can flatten models, such as intersecting cylinders, producing complex profiles in the developed shape. In order to manufacture such shapes efficiently on CNC machinery where the cutting entities available are typically lines and arcs, the software can automatically translate these complex profiles into a series of lines and arc elements. The process is designed to create the minimum number of geometries necessary to make the part to the required accuracy. The benefits are shorter programs and better quality parts.

Full assembly modelling

Radan3D is ideal for modelling simple or complex assemblies. Parts can be grouped together in assemblies or sub-assemblies within the model or can be saved and used across multiple models and assemblies. Radan3D supports both the Bottom Up and Top Down approach to 3D modelling

Bottom up

Radan3D can be used in the Bottom Up approach. This means the user can design each part in isolation and them bring them all together to form large assemblies.

Top down

Alternately, Radan3D can be used in a Top Down approach. This means that the user can work within the assembly, designing parts in context, ensuring correct function and fit.

Fold up from flat

Radan3D has a powerful utility that allows users to take existing 2D blanks and fold them up into 3D sheet metal models. Working from your bend allowances, the Fold Up from Flat utility will scan any 2D blank drawing looking for external profiles and bend lines. It will then create an accurate 3D sheet metal model from this 2D drawing.

Once created, this model can be edited in the normal way. This really is the most productive way to re-engineer existing blank data.

Integrated CAD/CAM

Radan3D will stand alone as a powerful and productive modelling tool. However, Radan3D can be fully integrated into Radan's suite of manufacturing products, offering truly integrated CAD/CAM.

Tool detailing

The unique multi view feature in Radan3D offers the user the ability to turn 2D orthographic views into a 3D model.

Simply extract profiles from an existing 2D drawing or draw 2 or more 2D views of an object, press the button and Radan3D will convert these views into a 3D model. It really is the quickest and simplest way to go from 2D to 3D.

Accurate design

To ensure accurate and flexible 3D design, Radan has the following key features :

• Parameter driven design

• Automatic addition of bends

• Advanced corner treatment with sheet overlaps or "airtight" corners

• Merge face function to join complex corners

• User defined blend allowances with global update