# Radan Standard **Demonstration Pack**



This Demonstration Pack will allow you to run videos at shows and also provide you with the material to demonstrate all products that the software can offer!

Simply select on a button of choice and it will clearly show you how to carry out the demonstration! Within the same folder is all the material necessary to complete the live demos if required.







### 2D CAD

This is for independent **drafting** of any kind. You can also use this as a holding area when you import drawings that you want to **grab** portions of to use in the part editor.



# 2D CAD continued....

As well as creating 2D geometry it is also very simple to import it too! See page 3 using the arrow in the bottom right hand corner or return home by selecting the home icon







# **Opening DXF and DWG files**

If you are importing a single DXF or DWG file, you will use the **Open** command.

If you are importing a batch of DXF or DWG files, you will use the **File > Import > 2D Drawing...** menu option.

In either case you will be able to set the import parameters.

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# 3D CAD

If you are licensed to use them, this contains two 3D applications. Use the **Radbend** facilities to create 3D sheet metal objects that can be passed as a flat blank to **Nest** mode for use in the manufacturing process. Use **RadbendCNC** to simulate and drive the bending of a part on your press brake.



### 3D CAD continued....

As well as creating 3D geometry it is also very simple to import it too! See page 5 using the arrow in the bottom right hand corner or return home by selecting the home icon







There are two ways to import drawing information from another computer. If the other computer is also using this product i.e. Inventor or Solid Works, you can simply copy and move the relevant symbol and drawing files between the computers. However, when the other modelling system is different, you must transfer the information using one of several standard (or neutral) file formats.





The following neutral file formats are acceptable for imported files: SAT format, IGES format, STEP format, SMX format, Pro/E format, Parasolid format, Inventor format, CATIA V4 format, CATIA V5 format, SolidWorks format, Solid Edge format, Unigraphics format!



# Laser/Profiling Machines





Through Radan's capabilities, users are able to program any kind of profiling machine ranging from Lasers to a Water Jet machines

Automatic Lead-ins and Cutting Paths are applied to both parts and nests

Features such as **Common Line Cutting**, **Scrap Cuts**, **Off Cuts and Remnants** are all dealt with easily and shown in the following demonstrations

The first demonstration shows the Smart Order feature within Radan



Nesting on a laser, Common Line Cutting, Scrap Cuts and Off Cuts with Projects follow on in the next pages



# Laser/Profiling Machines with Nesting





# Nest

This contains all the facilities for creating a nest schedule of parts and kits, and applying all the manufacturing processes to produce, verify and output an NC program.



Common Line Cutting, Scrap Cuts and Off Cuts with Projects follow on in the next pages



# **Common Line Cutting**





In true shape nesting for a profiling machine, you can specify that a part is suitable for **common line cutting** by ticking the Common cutting checkbox when adding the part to the schedule. The checkbox will be ticked by default if the part's Common cutting attribute is set to **yes**.

The nester will attempt to nest parts that have this property with a kerfs width gap between them, instead of the usual clearance. Auto tooling can then be applied to the nest to use common line cuts between suitably nested parts. The kerfs width that separates common cut parts from each other is determined from information in the standard tool loading setup that is being used, and from the auto tooling settings for the current machine and material. The width is that of the profile tool specified in the auto tooling settings rule for the largest external profiles.



Scrap Cuts and Off Cuts with Projects and Remnants follow on in the next page



# Scrap Cuts and Off Cuts with Projects and Remnants





When you are working on a nest of parts, use the **Sheet Scrapping and Off cuts** dialog to add horizontal and vertical cuts to the sheet skeleton.

Turn on **Add off cuts** to cut off one or two rectangular remnants from the unused area of the sheet. Turn on **Add scrap cuts** to add cuts in the spaces between the parts to break up the sheet skeleton. If you turn on both of these options, the scrap cuts will be applied to the area of the sheet that remains after the off cuts have been applied.

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# **Punching Machines**





Through Radan's capabilities, users are able to program any kind of punching machine ranging from Amada's to LVD's, Trumpf's to Boschert's, this means that there are no problems when dealing with standard turret machines and those that are fully index able.

Automatic Tooling and Micro-Joints (Tags) are applied to both parts and nests with ease

Features such as **Templates, Automatic Part Removal and Clamping Issues** are all dealt with easily and shown in the following demonstrations

The first demonstration shows a part being automatically tooled with corner tags included



Templates, Automatic Part Removal and Clamping Issues follow on in the next pages



# Templates





You can create **auto tooling templates** that auto tooling will use to add your own tooling (and optionally embedded part removal) to closed profiles or sections of closed profiles (e.g., notches). Auto tooling templates are useful when the tooling normally added by auto tooling is not acceptable. Auto tooling templates are **symbols** that contain the geometry of a closed profile or a section of a closed profile, and the tooling (and part removal) for the profile.

Auto tooling compares the geometry of template symbols with the geometry of parts to see if they match. If a geometry match is found, the tooling (and part removal) from the matching template symbol is added directly to the part.

This is a very simple demonstration for templates – it is more commonly used for a specific way of punching on more complicated corners



Punch Nesting, Automatic Part Removal and Clamping Issues follow on in the next pages



# **Punch Nesting**





### Nest

This contains all the facilities for creating a nest schedule of parts and kits, and applying all the manufacturing processes to produce, verify and output an NC program.



Automatic Part Removal and Clamping Issues follow on in the next pages



# **Automatic Part Removal**





All embedded part removal commands are added while in the **Tooling** sub-mode of **Part** mode. Part removal information is added **after** the part has been tooled. This is because the tooling information dictates where the machine is when the part is removed. Without this information, the machine cannot correctly reflect the range of movement of the picker or chute.

Demo 1 is embedding the parts with chute and picking operations automatically

Demo 2 is nesting the parts and picking automatically shown with un-load constraints







# Clamping Issues Resolved





Split Slots Under Clamps In Radan 2010 R1, linear slots that impinge on the clamp dead zone can now be automatically split into single hits. There are two items of system data that control this feature: a11 - set this to 'y' to switch this feature on u62 - set this to the distance that should be used to determine which slots require splitting

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# **Combination Machines**





**Combination machines** can pre-punch holes for lead-ins to start in, and can choose whether to punch or laser in some circumstances. The settings on the Combination page of the **Automatic Tooling** dialog are split into two sections: **Policy** and **Pre-punched holes for lead-ins**.

Basically it is as it sounds – there are 2 machine technologies combined into 1 machine allowing the user to program laser profile operation on complicated shapes but still be able to form the sheet as well as punch holes quicker than a laser can cut

The Demonstration below shows multiple tooling being added to the part with Automatic Part Removal being embedded into the symbol - All embedded part removal commands are added while in the **Tooling** sub-mode of **Part** mode. Part removal information is added **after** the part has been tooled. This is because the tooling information dictates where the machine is when the part is removed. Without this information, the machine cannot correctly reflect the range of movement of the picker or chute.



Nesting on a Combination Machine, Common Line Cutting, Automatic Part Removal, Scrap Cuts and Off Cuts with Projects follow on in the next pages



# Nesting on a Combination Machine





### Nest

This contains all the facilities for creating a nest schedule of parts and kits, and applying all the manufacturing processes to produce, verify and output an NC program.



Common Line Cutting, Automatic Part Removal, Scrap Cuts and Off Cuts with Projects follow on in the next pages



# Combination Machines Common Cutting





In true shape nesting for a profiling machine, you can specify that a part is suitable for **common line cutting** by ticking the Common cutting checkbox when adding the part to the schedule. The checkbox will be ticked by default if the part's Common cutting attribute is set to **yes**.

Tooling

The nester will attempt to nest parts that have this property with a kerfs width gap between them, instead of the usual clearance. Auto tooling can then be applied to the nest to use common line cuts between suitably nested parts. The kerfs width that separates common cut parts from each other is determined from information in the standard tool loading setup that is being used, and from the auto tooling settings for the current machine and material. The width is that of the profile tool specified in the auto tooling settings rule for the largest external profiles.



Automatic Part Removal, Scrap Cuts and Off Cuts with Projects follow on in the next pages



# Combination Machines and Automatic Part Removal





**Combination machines** can pre-punch holes for lead-ins to start in, and can choose whether to punch or laser in some circumstances. The settings on the Combination page of the **Automatic Tooling** dialog are split into two sections: **Policy** and **Pre-punched holes for lead-ins**.

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The following demonstration will nest the parts and picking is shown automatically with un-load constraints



Scrap Cuts and Off Cuts with Projects follow on in the next page



# Combi Machine Showing - Scrap Cuts and Off Cuts with Projects and Remnants



Tooling

26

Nest

When you are working on a nest of parts, use the **Sheet Scrapping and Off cuts** dialog to add horizontal and vertical cuts to the sheet skeleton.

Turn on **Add off cuts** to cut off one or two rectangular remnants from the unused area of the sheet. Turn on **Add scrap cuts** to add cuts in the spaces between the parts to break up the sheet skeleton. If you turn on both of these options, the scrap cuts will be applied to the area of the sheet that remains after the off cuts have been applied.





# Nesting



This contains all the facilities for creating a nest schedule of parts and kits, and applying all the manufacturing processes to produce, verify and output an NC program.

Use **Nest** mode to access the main Radpunch/ Radprofile facilities. These include: creating a nest with copies of a single rectangular part, creating a pre-cut blank for a part, creating and editing a schedule of parts to be nested, creating a nest using the parts nester, creating and editing a nest manually, defining the tooling for a nest, specifying the cutting order for a nest, specifying the unloading of, parts, compiling the blocks for your machine tool, verifying the blocks, editing the blocks, outputting the blocks and importing blocks and back plotting them to create a drawing.

Demo 1 is showing the new single part nester with true shape capabilities

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Demo 2 is showing our manual/ semi automatic bump nester



More Nesting Examples on next page





Nesting Continued....



# Select on the buttons below to see the nest on which it refers:

Laser/Profiling Machines Simple Example

Laser/ Profiling Scrap Cuts and Off Cuts with Projects and Remnants

Punching Machines Automatic Part Removal

Nesting on a Combination Machine

Combination Machines Automatic Part Removal Laser/ Profiling Common Line Cutting

Punching Machines Simple Example

Punching Machines Clamping Issues Resolved

Combination Machines Common Line Cutting

Combination Machines Scrap Cuts and Off Cuts with Projects and Remnants



# e2i



Keeping track and managing cost throughout the design and manufacturing process is a critical element in achieving a competitive advantage. e2i – estimate to invoice – is a multipurpose management system which enables users to integrate their company's activities from initial enquiry for a contract, through the quotation and production stages, to final delivery and payment.

Developed to meet the full needs of small to medium-sized manufacturing organisations, the system may also be used within larger companies for the cost estimation and management of specific activities and processes.

The e ine2i is short for estimating and the demos below help show an example of this

Part 1 shows how to import a dxf and prepare it for eQuote

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Part 2 shows how the features are recognised automatically from Radan and new operations are added – finishing with the estimated quote

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Full e2i example on next page



# e2i



e2i effectively models the manufacturing company's environment, taking into account all aspects of the business, such as estimating, buying and manufacturing which presents a number of key benefits to customers;

Sales – use the customer database for activity logging and contact records
Administration – keeping records up to date
Engineering – maintaining operation libraries, bill-of-material creation etc
Estimating – estimate creation and monitoring
Production – use of routing database to record job progress
Despatch – access to the system for delivery management
Goods-in – access to the system to record goods received
Accounts – access to allow invoice control and maintain customer payment
CAD/CAM Links – e2i can be integrated with Radan's CAD/CAM suite of products

Route Card 000001 part1 lss Route Cards Operations Reports References Route Card -Receipt pate : 13/04/05 Order Humber : 1234 Start Date : Part Number : part1 Due Date : Quantity: 5 Work Instruction : Parent Part : Batch: 02 Seq Op Code Description Set Time Run Time Qty Operator 10 LASER Laser Machine 20 FOLD Brake Press Folding Page: 1 30 NUTSERT Nut Insertion 9999 F INSP Final Inspection Remarks Sub Part Category Description Qty Material Nutsert 20.00 mild steel NUTSERT-000001 NUTSERT-000001

The demonstration shows a full e2i demonstration starting from a 3D environment this time



# RadbendCNC



RadbendCNC is a comprehensive solution for CNC programming of press brake machines. RadbendCNC enables companies to programme their press brakes offline as well as full 3D-model simulation of the bending process.

The software includes advanced features such as automatic bend sequence calculation, automatic tool selection and automatic finger stop placement offering simple programming and high productivity.

RadbendCNC features high levels of automation. The system examines the part to be programmed and determines an optimum bending sequence taking into account part geometry and best machinery practice. In addition, finger stop positions are set automatically to provide reliable positioning.

Demo 1 shows the process of taking a dxf to pressbrake simulation sing a feature called fold up from flat

Demo 2 is showing the possibilities of importing from many 3D packages and showing how pressbrake easily uses the 3D model







# Radan Updates Versions 4 – 2010 R1



# Radan 2010 R1 – September 2009



### 2D

#### **Partial Delete**

Partial delete now has a new, more intuitive default mode. The new mode is named 'Delete selected segment'. Only a single click on a feature is required to use it. The part of the feature that is selected is deleted up to the intersection(s) with other features (if indeed there are any).

### **Part Removal**

#### **Alternative Strategies**

Radan 2010 R1 allows multiple part removal strategies to be applied to a single profile. Each strategy has a priority value set which defines the order in which to 'try' to remove the part or scrap.

#### Licensing

#### **New Configuration Dialog for Network Licensing**

For users who have updated to use the new CLS Licensing, a major change can be seen in the way that network licensing is configured.

#### **General CAM**

#### **Single Part Layout**

The single part layout dialog now shows an extra checkbox which specifies whether to use true shape nesting in addition to rectangular nesting to choose the best nest result. This feature is available to all users.

### **Order Mode**

#### Window Auto-order

Automatic order can now be run in a specific region, rather than the whole sheet. The user interface has changed accordingly - automatic order is now a 'function' or mode in the main GUI and can be used in four different ways: Entire Sheet - all existing operations will be removed before processing the entire sheet Finish Sheet - all existing operations will remain and automatic order will complete the sheet (including any repositions, etc that may be necessary) Window - by selecting this feature and dragging windows across the sheet, the selected auto-order style will be applied to that region, creating any sub-routines that may be needed. Inside a group definition using a window - an auto-order style can also be used to define a group in accordance with the auto-order style.



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Radan 3D	0	0	6	Radan_RAD0007		
Radnest	0	0	6	Radan RAD0009		
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RadviewDNC Client	0	0	10	Radan RAD0029		
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# Radan 2009 R2 – March 2009



#### **Materials**

Standard Sheets File Radan 2009 R2 will use a new central sheets file which has a different structure to the existing standard sheets files. This will make working with materials and more particularly the manufacturing database in Radan more flexible, as well as allowing Radan to introduce materials management and stock control in the future.

### **Transferring forms to RadbendCNC**

Radan 2009 R2 allows form features to be sent to RadbendCNC which are then included in the clash detection during simulation.

### **Nest Projects**

Radan 2009 R2 offers users a new environment in which to create nests, either manually, automatically or both. Any user who is used to using the nest schedule to create nests will benefit from the visual feedback and flexibility on offer.

### Profiling

#### Pierce Styles for Scrap/Off cuts

Automatic sheet scrapping and off cuts now supports a pierce method.

#### Lead-ins at the sheet edge

A new setting in the machine settings controls whether a lead-in (cutting a part) is allowed to extend beyond the sheet edge. This setting will initially be set to 'y', which reflects the behaviour of automatic tooling in previous releases of the Radan software.











# Radan 2009 R1 – September 2008



### **Common line slitting**

Improvements to common line slitting to enable cutting on a part by part basis provide great accuracy.

#### Punching

New edit punch tool feature to enable an efficient replacement of tools applied to a drawing. Another new feature is punch tool overlaps improving efficiency for adjusting tool overlaps or creating micro-joints.

#### **Machine configuration**

A new machine configuration editor provides a simplified interface for users to setup and adjust machine parameters.

#### Nesting

An improved algorithm for rectangular nest parts improves the part layout on a sheet-bysheet basis, resulting in improved material utilisation.

#### lcons

New aesthetics for Radan icons, ensuring users can easily and quickly identify program and file types.







# Radan Version 8.5 – March 2008



Providing new users with a more familiar working environment. New style cursors and colour scheme offer a more ergonomic user environment. Graphics themes enable control of the user's preferences.

#### Remnants

Remnants can be used for manual nesting providing further functionality to ensure material utilisation. Remnants can also be created or updated after manual changes to the nest.

#### Sheet scrapping strategies

Further improvements have enabled 'cut-from-centre' strategies.

### **Finish nesting**

Enables users to even further automate the work flow.

#### Autodesk Inventor 2009

Support for the latest Autodesk Inventor files, ensuring users can continue to work seamlessly with customer files.











# Radan Version 8 – September 2007

# Windows Vista

Compatibility with the latest version of Microsoft Windows. This update has provide significant technology upgrades resulting in improved performance.

# Order mode

A substantial improvement to order mode performance resulting in up to 90% faster processing. Order mode text can also be automatically cleaned up before re-starting.

# **3D Design**

3D file import has been improved to automatically measures and detects material thickness, enabling more efficient and intelligent working in a 3D environment.

# RadbendCNC

Improvements to RadbendCNC enable full support for joggles transferred from Radan.

# **ACIS 17**

Offers the latest versions of 3D file importers including SolidWorks 2007, AutoCAD 2008 and Inventor 2008.

# 2D Design

2D file import automatically filters and maps colours to Radan colours to provide efficient working in a 2D environment. Shapes are now cursor objects enabling users to put down in arrays immediately. 2D normal's can snap to feature start and end point. Flexibility has been added to the drawing of curved rectangles, obrounds and trapeziums.

# **Part properties**

Geometric Part properties such as area, weight and perimeter are automatically stored when saving a file.

# Nesting

New Cluster Nesting allows optimal programming of the new Mazak OptoPath part picker. Sheet scrapping and off cuts are now automatically added during nesting. Finish Nesting automates tooling, order mode and post processing.

# Sheet scrapping and off cuts

Improved to provide new settings and a new dialog.





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# Radan Version 7 – September 2006



### Punching

Punch tool overlaps have been improved to stored and read from the materials database. Special tool types can store extra tooling information. Linear slots are automatically replaced by single punch blows during manual tooling.

#### **3D Design**

3D file import can now be automated using the Radan macro language. 3D adding sheets can now be done using existing 3D points.

#### Profiling

Fly-cutting on profiling machines is fully supported and automated. Over-burns and single tags are also fully supported in automatic tooling. Off cuts on laser machines are automatically added. Fly-cutting and scanning are two new options in automatic and manual sequencing.

### **Automatic Tooling**

Improved error reporting during automatic tooling ensures 'right first time manufacturing'.

### Nesting

Improvements to nesting include the ability to nest round clamps ensuring optimal material usage. Nesting with tooling geometry improves accuracy keeping the nest skeleton stable during cutting.

### SolidWorks

File import improved to include material information.



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# **Radan Version 6 – September 2005**

### Profiling

Automatic tooling for profiling machines now boast improved error handling and reporting. Alternative cutting strategies can be created when lead-in placement fails. Trumpf laser machines postprocessors shipped with comprehensive cutting information.

### Punching

Further flexibility when pre-punching on combination machines.

#### Part removal

Automatic part removal has been improved to enable picker information.

### **Common cutting**

Improvements to common cutting have resulted in easier use in manual nesting.

#### **Order mode**

Improved flexibility now allows full manual control over common cutting strategies.

# **Cutting strategies**

Full support for laser machines.

### **Plug-ins**

Allow the user to customise the standard Radan menus with extra functionality.





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# **Radan Version 5 – September 2004**



### Part removal

Automatic part removal adds necessary removal operations to parts.

**No-op operation** New feature to specify manual handling of parts or scrap.

Subroutine calls

Improved to automatically be adjusted if removal invalid.

# Punching

Auto tooling for punching machines enhanced for special shapes. Auto tooling templates teach auto tooling how to tool specific profiles.

# Profiling

An appropriate lead in can be automatically set for Common cut islands.

# Remnants

Users can be automatically generated and used by the automatic nester.

# **3D Design**

New fold-up from flat allows 2D (flat) geometry to be folded up into a 3D model. Parasolid import available as optional extra.

# **Help function**

'What's this' help provides assistance for all features within Radan.

# Documentation

HTML machine setup sheets can be configured to the customer's style.

### System setup

Visual Basic for Applications included in Radan 05 enables flexible customisation of the system.

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# Radan Version 4 – September 2003

# 2D Design

New 2D geometry engine offering fast and accurate geometry calculations for CAD and nesting.

# **3D Design**

New tube features added to 3D to allow easy modelling and splitting of tubes for cutting.

# **Automatic Tooling**

Ellipses automatically approximated during automatic tooling. Default auto tooling settings stored from editor.

# Profiling

Rules and Styles for profiling machines offers 100% flexibility when defining cutting strategies. Fast piercing now supported on Mazak machines. New settings for lead-in placement added to automatic tooling for profiling machines. Improvements to smart lead in placement including 'avoid head build-up' and open and etched profiles. Improved Manual positioning of lead-in to enable simplified use. Manual ordering of profiles allows full control over the cutting order.

### Nesting

New manual nesting for the ultimate flexibility and to help with material utilisation. Improved flexibility to support a mix of tooled and un-tooled parts on a nest. Clearances for nesting now stored per material and thickness. Common cutting setting added to automatic nesting.

# **Cutting sequence**

Improved to enable manipulation on a single part and copied to other parts.

### Translations

Support for Chinese and other languages added to the software.

# Radview

A new search window available when recalling a file.

# **File import**

Support for Native Pro/E 3D file import and AutoCAD 2004 and 2005 2D dwg file import.





