

: radraft

Drafting Solution

Radraft provides users with a comprehensive drafting solution for all your 2D design and drawing needs. Although easy to use Radraft has many advanced features to assist with the quick production of drawings and parts. With its compact GUI (Graphical User Interface) users can access a wealth of drawing tools and parametric profiles.

Productive Engineering Drawing

Radraft is a highly productive tool that will meet all your engineering drawing needs. The full toolset of drafting functionality is available for all other 2D geometry tasks within Radan. Whether it is a drawing, a sheet metal profile in Radan 3D, a sheet metal part in Radpunch or Radprofile, the full power of Radraft geometry construction tools is available. The standard toolset made available in Radraft, reduces training requirements, eases deployment and delivers higher productivity.

Intelligent profile healing

When transferring data between CAD systems the integrity of the lines and arcs is all important, especially when this data is intended for use in downstream manufacturing.

Radraft is highly accurate and produces drawings of the highest quality, unfortunately this is not the case for all CAD systems and file formats.

This is why Radraft comes with a set of sophisticated yet simple to use Geometry Utilities.

When importing data from other CAD or CAM systems, and working to your specified tolerances the Automatic Geometry utility will check for, and close small gaps in the profiles, trim back overlapping

lines and arcs and remove duplicated lines or arcs. It can also, if required, remove unwanted text and dimensions.

Compact User Interface

Radrafts compact user interface presents the user with a complete set of drawing tools organised in a logical way. Similar commands are grouped together and sub menus appear only when required and applicable to the task in hand.

This makes Radraft quick and easy to learn and a highly productive drawing tool. Simple graphical icons lead the user to all of the drawing commands with the addition of fly out tool tips to assist new or infrequent users. Backed up by an online manual and context sensitive help users will be producing quality drawings in the shortest possible time.

Features include

Fully featured 2D drafting package

Very quick and easy to use

Compact yet fully featured Graphical User Interface

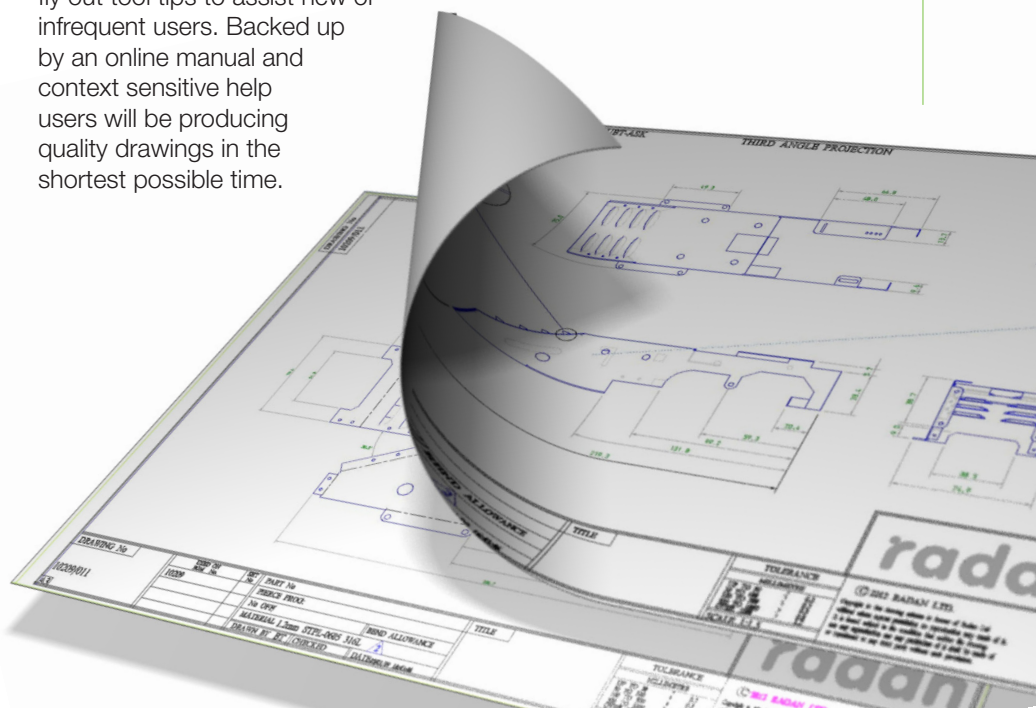
Supplied with a library of parametric engineering profiles

Exchange drawings via DWG, DXF and IGES

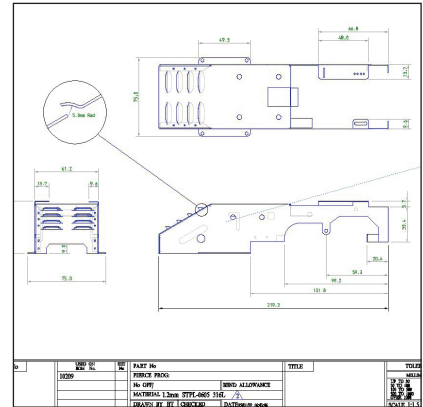
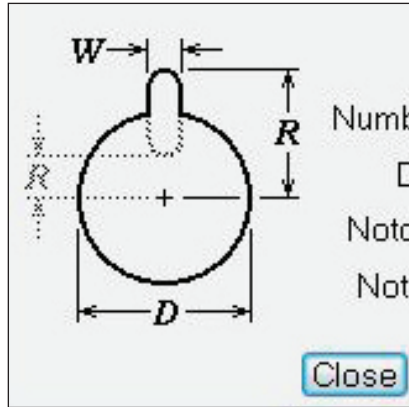
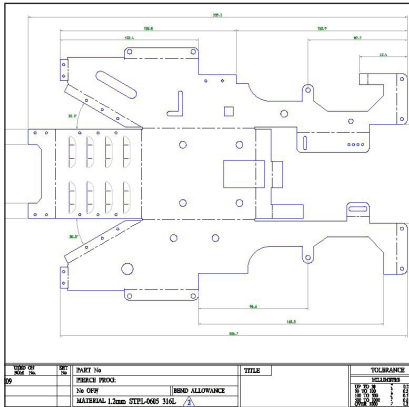
Parametric dimensioning

Parametric expressions

Automatic profile healing



Creating quality drawings using Radraft could not be simpler. Radraft has been specifically developed with manufacturing in mind to assist in the production of engineering drawings and comes with a wealth of standard engineering profiles and simple to use functions.



Intelligent Profile Smoothing

Radraft's Geometry Utility can simplify or smooth the geometry profiles. Some file types can't support complicated splines or arcs and consequently represent these by using many very short straight line segments. Such profiles can be difficult to work with and can cause problems when trying to apply tooling in the manufacturing process.

Working within your specified tolerances Radans Geometry Smoothing Utility will replace these many short line segments with smooth tangential arcs whilst maintaining the original shape of the profile.

This has the effect of making these profiles much simpler to work with, and can dramatically improve the quality of this geometry for use in the manufacturing process. It can also have the effect of greatly reducing file size.

Radan's Geometry Utilities can greatly speed up the process of cleaning and working with imported data, greatly improving drawing productivity and quality.

Snap & Latch Controls

Intelligent and easy to control latch and snap settings allow the user to quickly construct drawing profiles.

Automatic Horizontal, Vertical and point snapping, among others, allow the user to be quick but highly accurate when constructing geometry. In addition middle mouse Zoom, Pan and Redraw combine to make Radraft an efficient and highly productive drawing tool.

Text and Annotation

Radraft facilitates the quick and easy manipulation of multi and single line text. With access to your true type fonts Radraft enables the quick production of drawing notes and annotation.

Standard notes can be saved as symbols for later retrieval on the same drawing or used across multiple drawings. Text can be exploded back to lines and arcs for use in profile cutting in conjunction with Radpunch, Radprofile or used in 3D modelling in conjunction with Radan3D.

Drawing Attributes

Radraft drawings come with a host of standard and customisable attributes. These attributes can be used to store and retrieve valuable information about the drawing such as revision, drawn by, material etc.

Attributes can be customised to hold specific information about the drawings and parts and if necessary can be made mandatory ensuring consistency across the drawing office.

Parametric Dimensions

Radraft offers full parametric dimensions allowing the user to modify drawings and geometry by simply editing a dimension value. This facility can dramatically speed up the editing process.

Parametric Expressions

For those who wish to go a stage further Radraft offers Parametric Expressions. This feature allows the user to name some or all dimensions and then create mathematical expression to control these dimensions. Multiple versions can be created and stored, this is ideal for creating variations on a theme or developing whole families of parts.

: radprofile

CNC programming for your laser, plasma, water jet and flame cutting machines

Radprofile provides your operators with the tools they require to reduce lead times and optimise your laser, plasma, water jet and flame cutting machines. Designed to seamlessly integrate with Radpunch, the Radan punch/profile solution delivers optimisation for punch profile combination machine tools.

Seamless programming

Radprofile seamlessly integrates the whole programming process of geometry creation, nesting, cut path profiling, sequencing, code generation and finally DNC connectivity to the machine controller. The seamless integration delivered by Radprofile provides an easier to use experience for your operators, whilst accuracy and consistency of programming is maintained with the collation of process critical data in the Manufacturing Database (MDB). Material, lead-ins, lead-outs, tagging, and machine tool specific cutting technology data are stored in the MDB in readiness for instantaneous distribution when required to assist an operator or automated process. Understanding the sophistication and the limits of each machine tool individually is the key to driving it efficiently. Radprofile will assist your operators to optimise your manufacturing capacity to within those limits for all of your machines.

Process optimisation

Optimising the tool path, cutting technologies and cutting sequence for a profiling machine is paramount to the efficient programming of the machine and thus the reduction of the cost to manufacture a part. As profiling machines, particularly laser profiling machines become faster and more sophisticated, the integrity of the part in the nest sheet and the safety of the

machine head become even more paramount. Radprofile intelligently applies the profile tool paths automatically at the nesting stage to maintain the quality and integrity of your parts, whilst also optimising the cutting sequence and ensuring cutting head safety, thus enabling the machine tool to perform to its optimum potential.

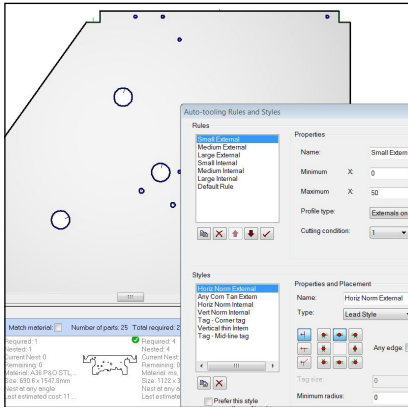
Radprofile supports automatic common line cutting. This enables the downstream nesting process to fully optimise material utilisation, whilst also benefitting from reduced cutting times and assist gas costs. Parts identified for common cutting can be controlled to cut in clusters to maintain sheet rigidity and remove tolerance problems associated with common cutting in large quantities.

Features include

- Drag and drop data input
- Batch processing of DXF/DWG
- Smart order lead-ins - maximise safety/reduce runtimes
- Automatic hazard avoidance, maintaining head safety
- Intelligent tagging of components and scrap
- Bridge cutting – reduced costs/times
- Automatic common line cutting
- Automatic remnants, sheet scrapping and off-cuts
- Project nesting, incorporating user definable reports
- Graphical program verification
- Quick estimates for parts or nests
- Simple intuitive interface with clear simple icons
- Reduced lead times and increased production flexibility



Radprofile intelligently applies the profile tool paths at the nesting stage to maintain the quality and integrity of your parts, whilst also optimising the cutting sequence and ensuring cutting head safety, thus enabling the machine tool to perform to its optimum potential.



Power and control

The power of automation with the ability to control by your preferences. The Radprofile programming solution provides your operators with easy to use software that can be educated to adopt your preferred practices and processes. Lead-in and Lead-out preferences, tagging, preferred profiling sequences - all these and more can be defined relative to material type, thickness and machine tool in the Manufacturing Database. The MDB expands with your business. The introduction of new customers, new products or new machines brings into your manufacturing environment the need to control new material, strategies and new practices. The MDB ensures consistency of programming for these new criteria for all of your machines, which translates to fewer rejects, less rework and higher returns.

If manual control is your preference, this is in abundance with Radprofile, enabling an operator to take full control of the programming process at any stage. The ability to interact manually and override any of the automated processes gives a Radprofile user the power to tackle the most difficult jobs with ease and confidence.

The fully integrated Project Nester provides your operator with an instantaneous overview of your profiling demand. Automatic rectangular nesting, single part true shape nesting and manual drag and drop nesting techniques enable your operator to quickly, easily and efficiently meet your ever changing production and customer demands. If material utilisation is critical to your business, upgrading the nester to our true shape nester, Radnest, will raise your material utilisation whilst also providing further advanced nesting tools for your operator.

Efficiency is everything

Radprofile is a fast, modern programming application designed and written by Radan to assist a programmer in transferring data from CAD to NC code. The seamless interface and automatic processes assist the operator in this process. Unfortunately, in reality, production workflow is not always that consistent. Problems downstream, manufacturing change requests, and reject rework requests all require an operator to be as fast and efficient.

Radprofile enables an operator to jump into the programming process at the point where the change is required, but it does not necessarily demand that the whole programming process is repeated.

A machine tool is only as efficient as the software driving it, so that is why we personally install every Radprofile post processor to ensure that it is commissioned to match your machine tool and controller. It is your production efficiency that it is going to be controlling - that's why your software is important to us.

: radnest

Advanced true shaped nesting

Radnest analyses the true shape, material and thickness of all components in a batch, separating and sorting automatically, producing high utilisation, manufacturable nests from sheets, off-cuts and remnants, delivering substantial savings in material and improving machine efficiency.

Radnest for punching or profiling

Radnest is a high performance true shape nester for punching and profiling machines, supplementing the nesting utilities present in a standard Radan system, allowing the user to have full control over part placement and nest generation either manually, semi-automatically or fully automatically. Radnest can dramatically increase sheet utilisation and significantly reduce the time taken to create nests.

Radnest allows 2D profiles to be imported en masse, setting attributes such as material, thickness and quantity to be set as part of the quick and easy process. Files can be cleaned and healed on import, removing drawing borders, text and dimensions whilst closing small gaps and removing rogue geometry. Preferences can be saved into templates, allowing you to tailor your import to your customers' data.

Kits can be created within Radan, helping to avoid parts from being missed from assembly lists. Simply enter into Radnest which kit you would like to manufacture and how many. Radnest will then explode the kit into its component parts with the correct materials, thicknesses and quantities.

Profiling with Radnest

When used with Radprofile, Radnest can automatically produce common line cuts between adjacent parts to further increase material utilisation and reduce cycle time. Gaps between components are controlled by the kerf width created by a given material, thickness and cutting method for a specific machine. This data is stored within Radan, meaning that complete automation is possible. Radnest is able to mix different nesting techniques on the same sheet, whether that means rigid kits, picking clusters, common cutting or standard spaced. The result is industry leading results for today's modern machinery and manufacturing techniques.

Features include

Increased material utilisation with the ability to prioritise sheets

Improved machine efficiency

Reduced lead times through dynamic nesting and enhanced data imports

Automatic material sorting

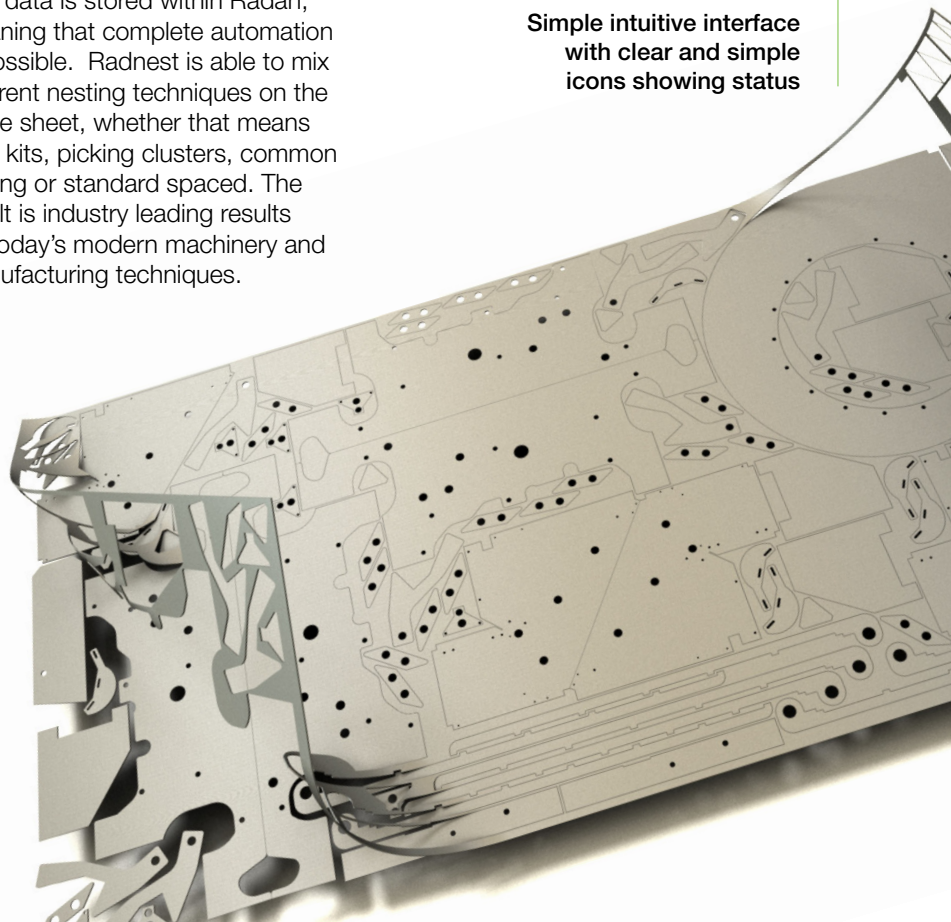
Automatic remnant usage and tracking

Easy integration and inclusion into your current work flow

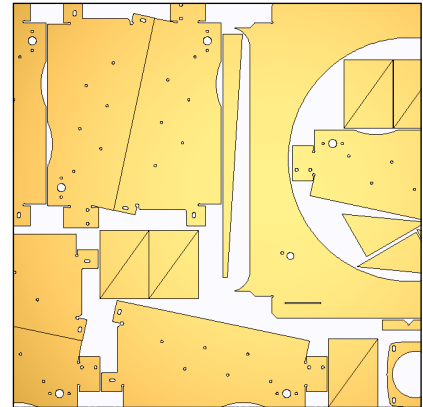
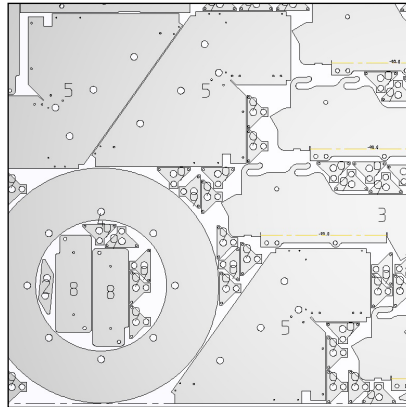
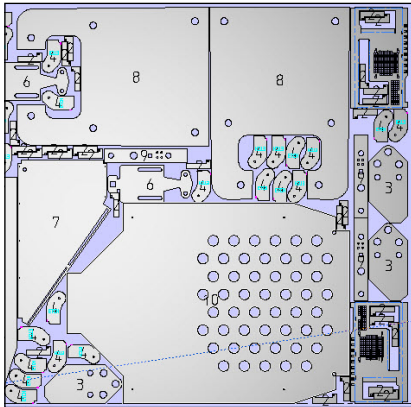
Flexible and powerful nest editing tools

Machine specific nests with associated CAM rules

Simple intuitive interface with clear and simple icons showing status



By using Radnest, you can expect to produce more components from less material in less time. The efficiencies gained have a significant effect on profit enabling you to manufacture parts from material that would have previously been in the scrap bin.



Advanced nesting for punching machines

When Radnest is used with Radpunch, the tooling for each part is compared against the available stations in the turret or tool changer. This may restrict the orientations at which a part can be placed or mean that a different part is selected for the current nest. It is extremely important that the nest produced does not exceed the tooling capacity of the machine tool, as this would result in a program that could not be run. Radnest can analyse the geometry of punch tools used on parts, enabling accurate spacing of components based on the distance between tool hits rather than the conventional part spacing. This allows parts to be nested closer together whilst still maintaining rigidity in the sheet and removing the danger of large external tools entering a neighbouring part.

Reading the data stored on Radan geometry is another way that Radnest improves the accuracy and reliability of nesting within an organisation. Radan parts can have orientation restrictions, common cutting rules and removal data embedded onto them for any machine tool. Radnest is able to extract this data and use

it in context, based on the machine the nest is being created for. Radnest enables manufacturing flexibility that is unrivalled in our industry by using the information available to create the best manufacturable nest possible for any punching or profiling machine.

Power and control

Radnest will keep track of components that have been nested and materials available. If the user decides that they do not want a nest for some reason, they can just delete it prior to manufacture. Any parts that were on the nest will return to the waiting list of parts and the material will return to the stock list. At any point, the user can take manual control and place parts into a sheet or remnant. Radnest will keep a count of what has been done and modify the requirements accordingly. Manual placement of parts is interactive, with Radnest keeping control of component spacing if required. Simple functions like filling the free area of a sheet with stock or extra components can be accomplished easily, either manually or automatically.

Radnest can place parts onto a sheet of any shape and areas of a specific sheet can be marked as

unusable, whether that is because a component has been cut out or the sheet is defective for some reason. When nests are created that have an amount of free sheet remaining, Radnest can automatically create a remnant. This remnant can be true shape, being exactly the skeleton created, a rectangle trimmed to the last component on the nest, or to a predetermined size in a range of sizes. Radnest will automatically store and use remnants as required, allowing the user able to create bias, helping to avoid the accumulation of remnants.

Efficiency is everything

Radnest is a fast, modern nesting application designed and written by Radan to get the absolute best from available options whilst still allowing a human touch when required. This is crucial in fast-moving, ever-changing production environments. Radnest uses very modern and complex nesting algorithms to make decisions about parts being nested, the materials available and the machine running the program. To do this effectively it uses all of the computing power available, fully utilising today's modern multi-core processors to get the most cost efficient result in the shortest time.