DENFORD

On-Line Technical Forum

TECHNICAL SUPPORT AVAILABLE 24 HOURS A DAY, 7 DAYS A WEEK

Denford's Technical Forum is a free of charge on-line technical support service that is available to Denford customers 24 hours a day, 7 days a week. **www.denfordata.com/bb/**

"The technical forum has provided a wealth of information and support for our 20-year-old Denford CNC machine, in fact just as good as the support we receive for our brand new CNC Router!"

As well as offering comprehensive technical support, Denford's On-Line Technical Forum enables customers to share ideas and projects with other users. Media such as teaching material, project work, PDF's, images, drawings and text documents are easily attached to messages for all users to view and comment on.

You can also read the latest Denford news before anyone else, and keep track of machine and software upgrades, some of which can be downloaded direct from the Technical Forum web site.

The On-Line Technical Forum has proved to be hugely popular with customers. One recent user posted a note to inform us that the Technical Forum has "provided a wealth of information and support for our 20-year-old Denford CNC machine, in fact just as good as the support we receive for our brand new CNC Router!"

Of course the traditional methods of phone and email are still available, but try out this new service by simply logging on to www.denfordata.com/bb/ and register.

Denford's On-Line Technical Forum is a free of charge service that can be accessed 24 hours a day, 7 days a week.

The On-Line Technical Forum is available to Denford customers, old and new, and it couldn't be easier to use. Just visit http://www.denfordata.com/bb/ and register on line.....it's that simple.

Denford's On-Line Technical Forum opens up the traditional communication channels that can restrict customer and technical support, due to availability of staff, teaching commitments or different time zones.

A multitude of topics relating to Denford machines and software (both new and old) are covered within the forum, which is simple to search, and easy to use.

Denford's Technical Team and Denford customers from around the world regularly log on to the forum to offer support and advice and, most importantly, post a solution for all to see.

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DENFORD

Product Catalogue International Edition

CAD/CAM Solutions & Projects for Education

Denford are the proud sponsors of:

IN SCHOOLS

IN SCHOOLS technology challenge

eim ENGINEERING IN MOTION

GT IN SCHOOLS

INNOVATIVE EDUCATIONAL PROJECTS

May 2011

ISO9001 Compliant

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Dear Reader,

Welcome to the latest edition of the Denford Product Catalogue – CAD/CAM Solutions & Projects for Education

It has been a very busy 12 months for all of us here at Denford, with the move to our new premises taking centre stage. After almost 60 years at our Birds Royd location, Denford Limited - a business which has built a world-wide reputation for quality and technological excellence – has moved into a new purpose-designed 18,500 sq ft facility on the opposite side of the River Calder, at Armytage Road, Brighouse.

Denford's new purpose-built manufacturing, office and demonstration facility.


State-of-the-Art Workshops

The new premises incorporate the company's manufacturing facilities, including 3,200 sq ft of office space, as well as a dedicated showroom, demonstration and training facility.


Training at Denford and 3 Year Warranty

Our doors are open and we would be pleased to welcome those Customers and Distributors from around the world, who would like to take the opportunity to view our new premises and update themselves on the array of new products and services, which are detailed in this latest edition of the Denford International Catalogue.

We look forward to seeing you here very soon.

Yours sincerely

Simon Moorhouse
Managing Director

The F1 in Schools and 4x4 In Schools Challenge

F1 in Schools is a multi-disciplinary challenge in which teams of students aged 9 to 19 deploy CAD/CAM software to collaborate, design, analyse, manufacture, test, and then race miniature gas powered balsa wood F1 cars.

Students taking part in the challenge are inspired to use IT to learn about physics, aerodynamics, design, manufacture, branding, graphics, sponsorship, marketing, leadership/teamwork, media skills and financial strategy, and apply them in a practical, imaginative, competitive and exciting way.

The challenge is supported with the F1 in Schools Curriculum Resource, a set of cross-curricular materials to help you run a project based on the F1 in Schools competition. Designed for pupils aged between 9 and 19, it includes over 60 fully-resourced session plans - everything you need for running the project in your school.

With the F1 in Schools Global operating in over 35 countries and currently with over 15 million students aware of the Challenge, F1 in Schools provides a real opportunity for a learning experience of a lifetime and the chance to become a World Champion!

The 7th F1 in Schools World Finals will be taking place in Malaysia in September 2011 linking into the Singtel Singapore Grand Prix. With over 30 teams competing for the Bernie Ecclestone World Champions trophy, the event is set to be better than ever with teams battling to be crowned the F1 in Schools 2011 World Champions.

Denford are also the proud Founders and Sponsors of the '4x4 in Schools Technology Challenge' in partnership with Land Rover, The IET and JCB and 'GT in Schools' in partnership with Jaguar Cars.

For further information please visit the following sites or follow us on:

facebook

www.f1inschools.co.uk
www.4x4inschools.co.uk
www.gtinschools.co.uk

Andrew Denford
Founder and Chairman,
F1 in Schools Ltd

F1 IN SCHOOLS™

4x4 IN SCHOOLS technology challenge

GT IN SCHOOLS

NEW PRODUCTS

NEW
MRC 40
see pages 24-25

NEW
Router 6600/Pro
see pages 30-31

NEW
5 Station Automatic Tool Changer
see page 34

NEW
F1 in Schools Curriculum Resource
see pages 50-51

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CONTENTS

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PROUD FOUNDERS & SPONSORS OF...

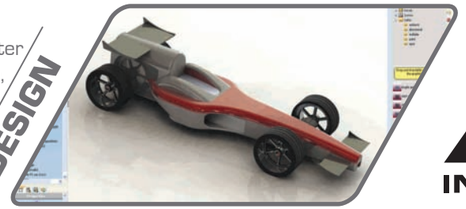
BUSINESS PLAN

NEW! F1 IN SCHOOLS CURRICULUM RESOURCE
SEE PAGES 50-51

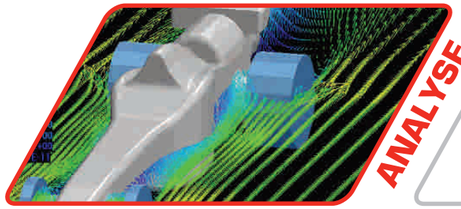
Working in teams of between 3 and 6, each student is assigned roles. The team prepares a business plan, develops a budget and raises sponsorship. Teams are encouraged to collaborate with Industry and forge business links.

DESIGN

Using 3D CAD (Computer Aided Design) software, the team designs a Formula One™ car of the future.



F1™ IN SCHOOLS



ANALYSE

Aerodynamics are analysed for drag coefficiency in a virtual reality wind tunnel using Computational Fluid Dynamics Software (CFD)

MAKE

Using 3D CAM (Computer Aided Manufacture) software, the team evaluates the most efficient machining strategy to make the car.

Aerodynamics are tested in wind and smoke tunnels.

TEST

www.f1inschools.co.uk

RACE

Teams are judged on car speed, as well as supporting evidence of their design, verbal presentation and marketing display stand in "the pits".

PROJECTS

DENFORD

INNOVATIVE EDUCATIONAL PROJECTS

The F1 in Schools Technology Challenge encourages students to explore a variety of engineering and manufacturing processes by using CAD/CAM and CNC technology to produce their own model F1 Car of the Future.
As founding partners of the F1 in Schools Technology Challenge, Denford supply a wide range of equipment and training to get you to the starting line. In addition, Denford also support the 4x4 in Schools Technology Challenge & GT in Schools - The Sports Car Challenge.

4 x4 IN SCHOOLS technology challenge

This National Challenge offers an exciting opportunity to encourage the development of our engineers of tomorrow, to engage young people in the complexities and challenges of design engineering, and to demonstrate the rewards of choosing engineering as a career.

Sponsored by:
Land Rover, The IET, JCB, Denford, SSAT, DATA and SEMTA.

www.4x4inschools.co.uk

GT IN SCHOOLS

GT in Schools - The Sports Car Design Challenge is a competition, open to all UK based Secondary Schools, Colleges and (organised) Youth Groups, to design and manufacture miniature gas powered model GT sports cars.

The process will follow closely the real life process that Engineers in automotive companies such as Jaguar follow, i.e. sketching, modelling, scanning/digitising, analysing, making, testing and racing.

Sponsored by:
Jaguar Cars

www.gtinschools.co.uk

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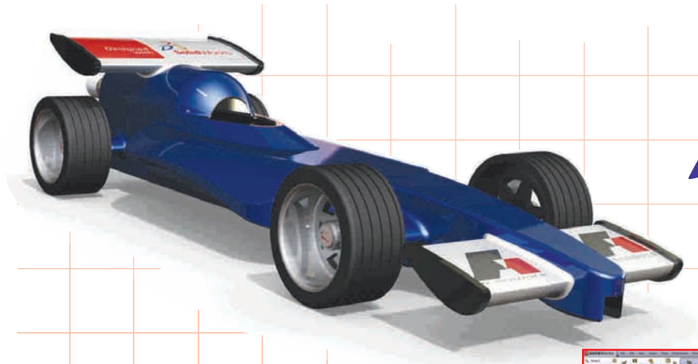
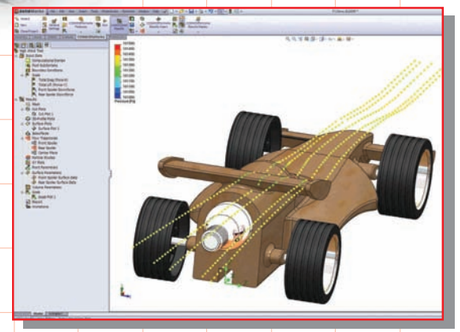
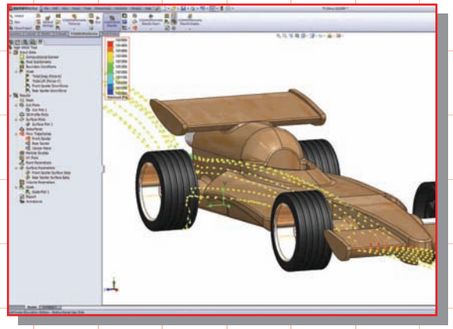
DENFORD

SolidWorks™ Education Edition*

3D DESIGN, DRAFTING AND SIMULATION SOFTWARE







Technical support through SolidWorks' Customer Portal

Teacher resources & curriculum materials, including an F1 in Schools Project, are supplied with every license of SolidWorks Education Edition*.

***Classroom Licence Package for Secondary Schools (any school below college/university level)**

CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

SOFTWARE

DENFORD

SolidWorks™ 3D Design

3D DESIGN, DRAFTING AND SIMULATION SOFTWARE

SolidWorks is the same software that engineering professionals worldwide use to design innovative, real-world products. SolidWorks Education Edition* includes curriculum materials, making it easy for you to teach at every level of education, and is ideal for those involved in delivering the new Engineering Diplomas.
SolidWorks is simple for your students to learn and use. Without leaving the SolidWorks application, students will be able to fully simulate their designs, enabling them to truly learn about engineering processes.

DESIGN ANY PROJECT IN 3D

with ease using SolidWorks' powerful, yet easy-to-learn tools, then create professional-quality drawings, photo-quality renderings and animation.
SolidWorks was the first parametric 3D CAD tool ever developed for Windows™, and since its initial release in 1995, it has continued to define the standard for usability in 3D CAD.

NEW for SolidWorks Education 2011/12
SolidWorks Sustainability
Rapidly calculate the environmental impact of your designs based on your material choices, manufacturing and use location. Calculates CO^2 footprint, water and air pollution and total energy consumption.

TEACHER RESOURCES & CURRICULUM

are included with every license of SolidWorks Education Edition* to help educators learn and teach the software. Materials include Teacher and Student Guides, F1 in Schools Project, Bridge Design Project, PowerPoint™ presentations and tests, as well as more than 50 tutorials built into the product. All of this material is designed to help educators focus on teaching design rather than simply on CAD commands.

SOLIDWORKS SUBSCRIPTION SERVICE

is included the first year with every purchase, and may be renewed each year for continued peace of mind. Subscription Service provides:

- Technical support through SolidWorks' Customer Portal
- Product upgrades and updates
- Free home-use licenses for your students

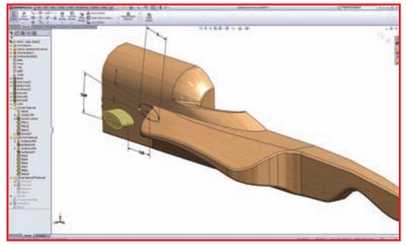
SIMULATE YOUR DESIGNS

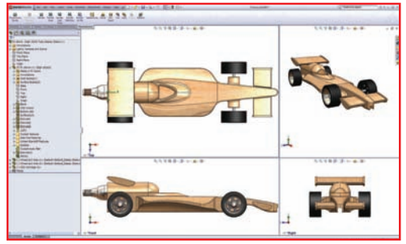
Simulate your designs in SolidWorks. Without even leaving the SolidWorks application, your students will be able to fully simulate their designs, enabling them to truly learn about engineering processes.

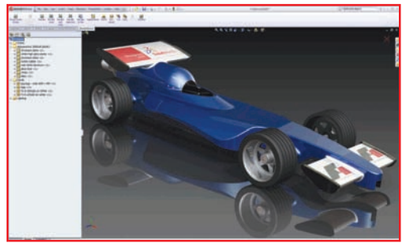
Here you see an aerodynamic simulation of an F1 in Schools race car. SolidWorks also provides tools for stress, thermal, vibration analysis and much more, all with extensive documentation and tutorials.

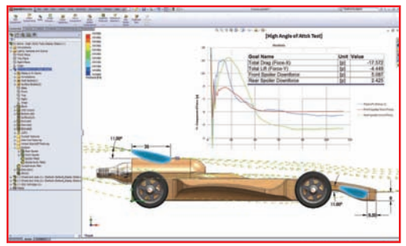
SYSTEM REQUIREMENTS

Windows 7 Professional, Ultimate and Enterprise versions are supported (both 32 and 64-bit systems)
Intel Pentium, Xeon or Core, AMD Athlon, Opteron or Turion
1GB minimum RAM
Tested OpenGL workstation graphics card and driver combination (see www.solidworks.com/graphicscards)
DVD Drive and pointing device
Internet Explorer 6
Microsoft Excel 2002, 2003 or 2007









Get help, advice and share designs online
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Ideal for use in conjunction with IN SCHOOLS™

To get you up and running, Denford also offer a range of CNC Routers, Lasers, Milling Machines and Lathes, together with tooling packages, workholding kits and courseware.

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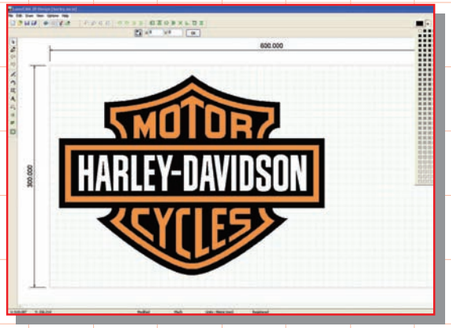
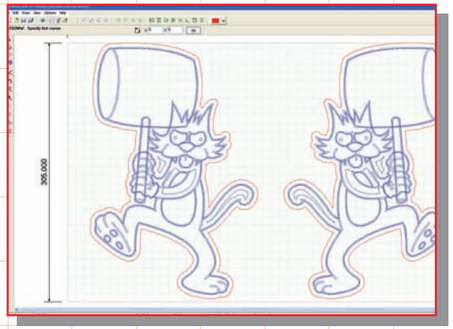
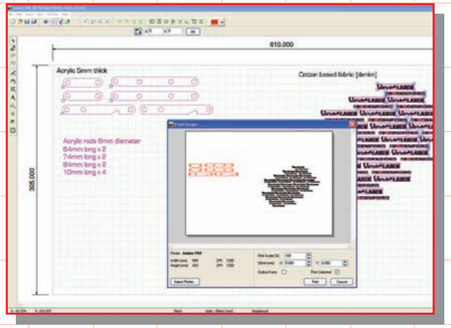
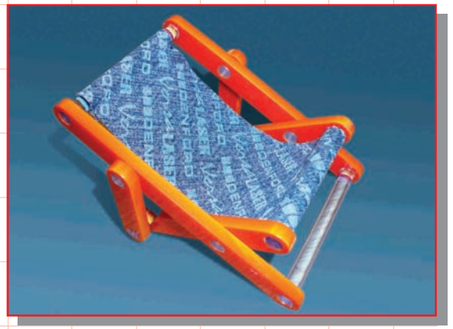
LaserCAM 2D Design

2D DESIGN SOFTWARE FOR LASER CUTTERS









LaserCAM 2D Design

2D DESIGN SOFTWARE FOR LASER CUTTERS

LaserCAM 2D is a 2D CAD solution for use with Laser cutting machines. Simple designs can be created quickly and accurately and output to a laser with minimum effort. A host of import options make it the ideal way to manufacture logos, designs and projects on most types of Laser cutter & engraver.

SOFTWARE

POWERFUL TOOLS TO MAKE LASER MANUFACTURING EASY

LaserCAM 2D Design has all the features you need for laser cutting / engraving - all in one place. For example, the image importer includes image editing features to adjust brightness, contrast and gamma. The interactive preview and tools to create greyscale, black and white or halftone images will ensure you get the best results every time.
Custom colour palettes make it easy to pick the right colours for the laser driver (e.g. solid blue for vector engraving, solid red for vector cutting, black for raster engraving).
Grid size setup is easy - just click 'Match to Printer' and select the laser driver you're going to use.
Before printing your design, the handy preview window allows you to offset its position and scale, without altering the original. It also gives you the option to only output selected objects.
With a wealth of designs available in postscript (.EPS) and metafile (.WMF, .EMF) formats, you will never be stuck for logos or cool designs!

CAD DRAWING FEATURES

The following objects can be created to exact sizes:
Lines, Arcs, Polylines, Curves, Polygons, Ellipses, Text*, Multi-line Text with justification*, Hatched areas, Offset paths, Bitmap Image Contours.
*Any TrueType font available to Windows™ can be installed and used by LaserCAM

Drawing features allow easy creation and manipulation of objects:
Customisable grid size for snapping to fixed distances, Editable object nudge, Angular (polar) snap, Absolute and relative co-ordinate entry, Object property editor allows sizes, angles and positions to be entered exactly, Quick drawing navigation (pan & zoom) is realised by mouse wheel operation, Object grips can be grabbed and moved, Various object snap modes can be activated at any time: End point; Mid point; Nearest; Intersection; Tangent; Perpendicular.

Object modifiers allow objects to be altered quickly and accurately:
Move, Scale, Rotate, Mirror, Copy, Paste, Join, Explode, Group and Ungroup, Customisable colour palettes for easy configuration to match the Laser driver, Rectangular array, Circular array, Boolean shape operators: Union; Intersect; Split; Subtract.

IMPORT/EXPORT FEATURES

Import:

Raster Images: .JPG; .BMP; .ICO; .EMF; .WMF
Clipboard paste from other drawing packages such as CorelDraw.
PCB Gerber file (RS274X).
AutoCAD: .DWG and .DXF (versions up to 2000).
Vector image clipart metafiles: .WMF and .EMF
Fonts: True type .TTF font files.
Encapsulated PostScript: .EPS vector files.

Export:

AutoCAD: .DXF files can be saved.
QuickCAM 2D Design: .MCM files saved in LaserCAM can also be opened in QuickCAM 2D for CNC machining.

SYSTEM REQUIREMENTS

IBM or 100% Compatible PC,
Pentium III, 1Ghz, 512MB RAM,
200MB Free Hard Disk Space,
Microsoft Windows XP; NT; 2000; Vista; Windows 7,
CD-ROM Drive,
OpenGL 3D Accelerator Graphics Card with 128MB RAM supporting at least 1024 x 768 screen resolution.
CNC Machines require USB Connection.

Get help, advice and share designs online
www.denfordata.com/bb

To get you up and running, Denford also offer a range of CNC Routers, Lasers, Milling Machines and Lathes, together with tooling packages, workholding kits and courseware.

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SOFTWARE

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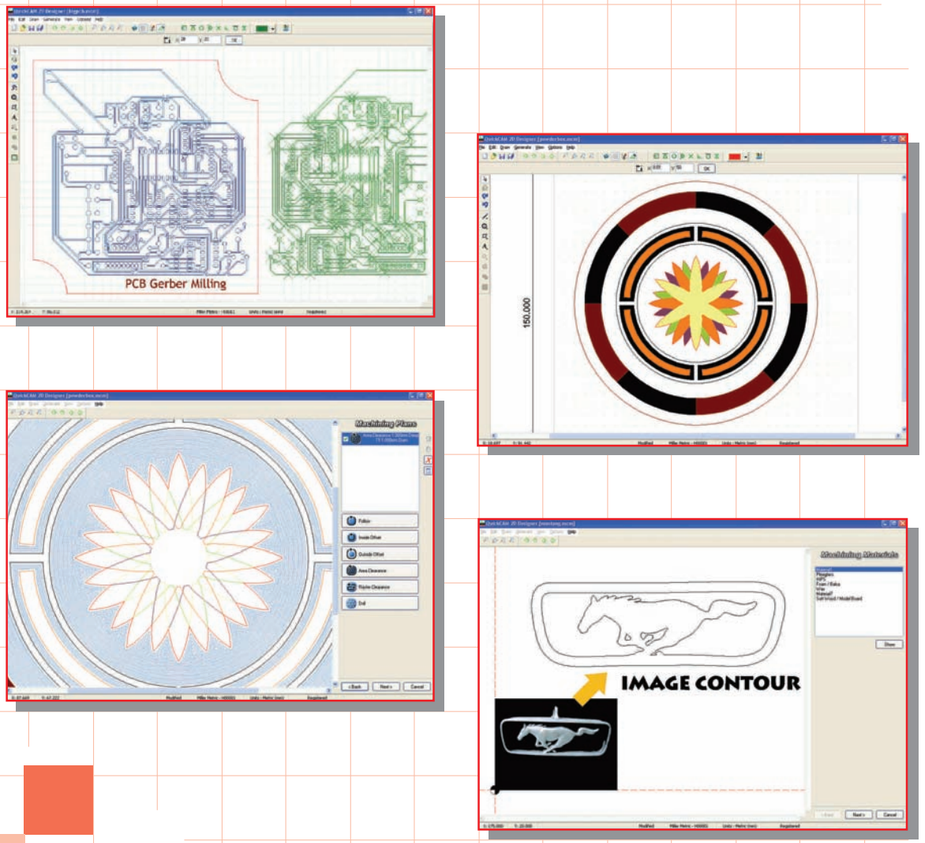
QuickCAM 2D Design

2D DESIGN & MANUFACTURE SOFTWARE



DENFORD

QuickCAM 2D Design

2D DESIGN & MANUFACTURE SOFTWARE

QuickCAM 2D Design is an advanced, yet simple to use, wizard based 2D CAD/CAM package. You can create designs quickly and accurately, then run the CAM wizard to create CNC machine toolpaths. It features various import options to allow images, PCB's and designs from other CAD packages to be manufactured. The customisable post processor and advanced printing facilities provide outputs to most desktop CNC and laser machines.

SOFTWARE

CAD DRAWING FEATURES

Shape Creation:
Line, Polyline, Rectangle, Curve/Spline, Circle, Arc, Point, Polygon, Ellipse, Text, Multiple Line Text with Justification, Hatch, Offset Path, Image Outline (Contrast Edge Detection).

Drawing Help:
Customisable Grid Size, Grid Snap, Object Nudge, Polar Snap, Absolute and Relative Co-ordinate Entry, Shape Property Editors, Fast Drawing Navigation.
Snap Modes: End, Middle, Nearest, Intersection, Tangent.

Shape Modification:
Unlimited Undo and Redo, Move, Scale, Rotate, Mirror, Copy, Paste, Join, Explode, Group and Ungroup multiple shapes, Apply colour to any shape, Modify shape using grips or by property editor, Boolean shape operations: Union, Intersect, Split, Subtract, Rectangular Repeat, Circular Repeat.

IMPORT/EXPORT FEATURES

Import
Raster Image - JPG,BMP,ICO,EMF,WMF.
Clipboard Vector paste (eg from CorelDraw)
Gerber (RS274X) - PCB designs are imported and converted into polylines.
Autocad drawings (DWG,DXF) - drawings can be imported (Autocad versions 2.5 through to 2000).
Vector Image Clipart - WMF, EMF.
Font - any Truetype Font (TTF) can be imported then used by the software.

Export
Autocad DXF versions 10 through to 2000.

Custom file format for loading and saving design, machining plans and images.

CAM WIZARD FEATURES

Material selector - customisable materials define cutting feeds, speeds and cutting depth.
Machining plan - easily create and rearrange any number of machining plans from the following types:

Follow - follow the shapes path ideal for Engraving and Laser Cutting.

Inside Offset - offset cutter path inside shape(s) with automatic island recognition.

Outside Offset - offset cutter path outside shape(s).

Area Clearance - multiple offset cutter paths inside the shape(s).

Raster Clearance - create a raster path at any angle to clear the inside of shape(s).

Drill - select point, circle or arc centres for drilling operations.

Automatic island recognition selects whether shapes within shapes are machined on the inside or the outside.
Each island's level (ie, inside or outside) can be altered manually.

Post Process - final tool path can be simulated quickly in 2D then posted (G code) to a variety of machines via the customisable post processor.

Powerful printing features allow printed output to be previewed, moved and scaled accurately - making it ideal for use with plotting, engraving and laser cutting devices.

SYSTEM REQUIREMENTS

IBM or 100% Compatible PC,
Pentium III, 1Ghz, 512MB RAM,
200MB Free Hard Disk Space,
Microsoft Windows XP; NT; 2000; Vista; Windows 7,
CD-ROM Drive,
OpenGL 3D Accelerator Graphics Card with 128MB RAM supporting at least 1024 x 768 screen resolution.
CNC Machines require USB Connection.

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SOFTWARE

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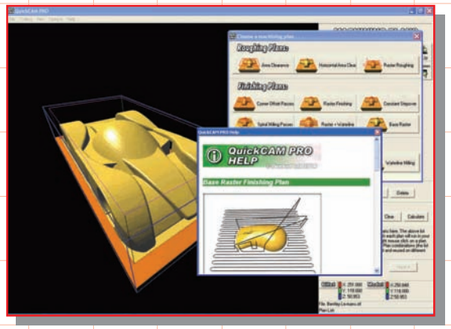
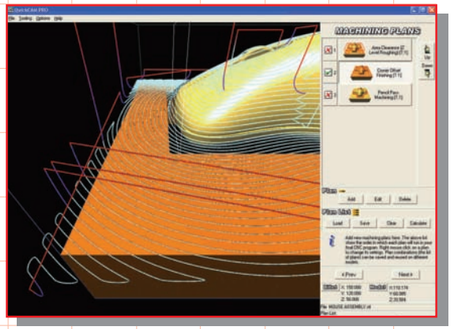
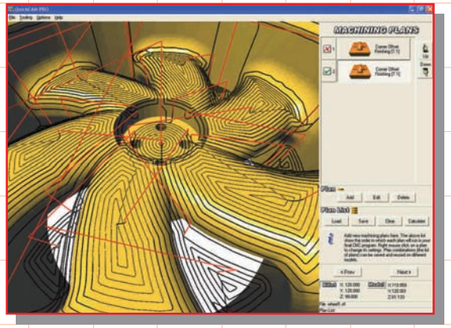
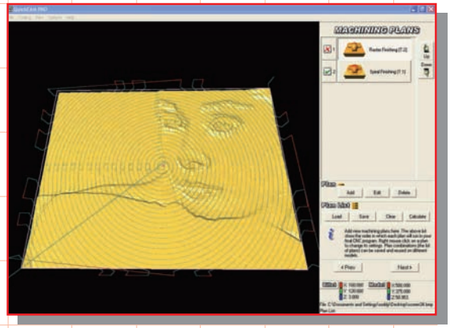
QuickCAM PRO

ADVANCED MILLING CAM SOFTWARE









CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

Ideal for use in conjunction with IN SCHOOLS™

DENFORD

QuickCAM PRO

ADVANCED MILLING CAM SOFTWARE

QuickCAM Pro is an advanced, yet simple to use, wizard based CAM package, which is used to create cutter paths for machining 3D parts on a milling machine or router. Both STL files and image files can be imported into QuickCAM Pro, and a comprehensive set of machining plans can be used individually or in combination to produce complex 3D surfaces and lithophanes.

SOFTWARE

FEATURES

12 machining plans – use individually or in combinations:

- **3 Roughing Plans.**
- **6 Finishing Plans.**
- **3 Fine Finishing Plans.**

Each plan can be customised or used with default values.

Any number of plans can be used to produce the final part.

Different cutters can be used with each plan.

Simulation mode can be toggled on or off for easy viewing.

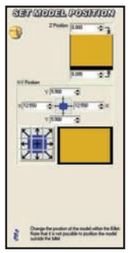
Custom boundary feature allows selected area to be machined.

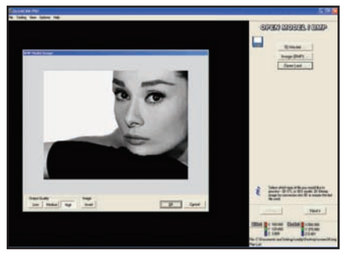
Viewer and simulation colours can be selected and changed.

Finished models can be rendered in custom materials.

Intelligent scaling fits model into billet or billet around model.

Comprehensive “show me” files to provide Help options.

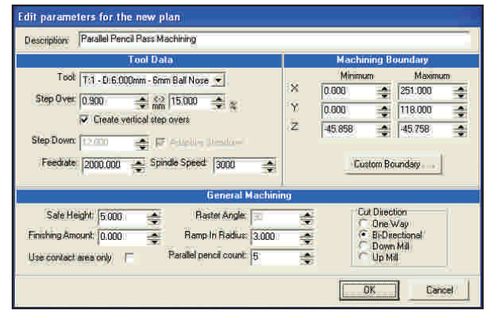




SUPPORTED INPUT FORMATS

3D Stereo Lithography*(STL) files.
*Used by Pro/DESKTOP, ArtCAM, Autodesk Inventor and Solid Edge.

AutoDesk 3D Studio Files (3DS).



SYSTEM REQUIREMENTS

IBM or 100% Compatible PC,
Pentium III, 1Ghz, 512MB RAM,
200MB Free Hard Disk Space,
Microsoft Windows XP; NT; 2000; Vista; Windows 7,
CD-ROM Drive,
OpenGL 3D Accelerator Graphics Card with 128MB RAM supporting at least 1024 x 768 screen resolution.
CNC Machines require USB Connection.

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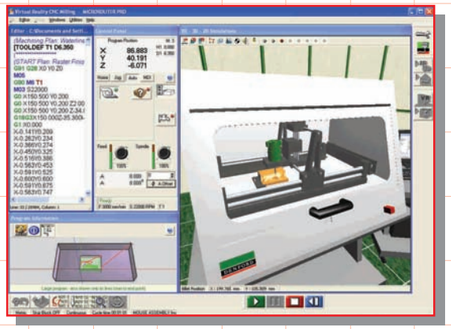
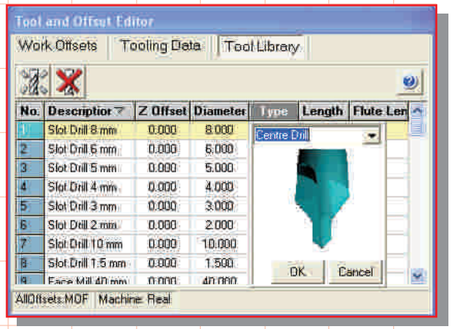
SOFTWARE

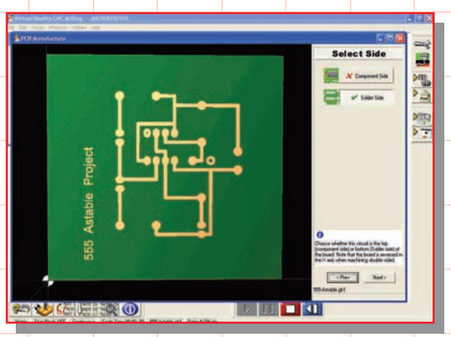
DENFORD

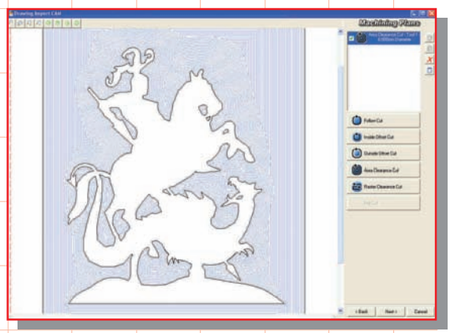
VR CNC Milling 5

CNC MACHINE CONTROL SOFTWARE









CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

Ideal for use in conjunction with IN SCHOOLS

DENFORD

SOFTWARE

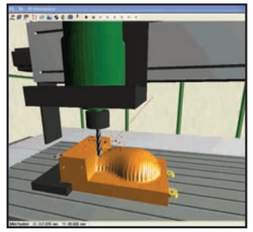
VR CNC Milling 5

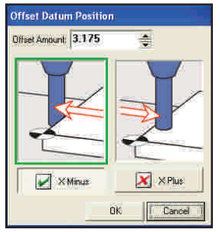
CNC MACHINE CONTROL SOFTWARE

Virtual Reality (VR) CNC Milling 5 is an improved and updated version of our CNC machine control software incorporating Denford PCB Manufacturing Software and 2D DXF import facilities, together with USB connectivity, delivering machining times up to 40% faster than before. Enhanced features provide the user with new machining capabilities, simplified options in datum setting, improved tool and work offset features and a new, powerful, virtual reality 3D simulation engine.

PROGRAMMING FEATURES

Program information screen provides fast interactive 3D depiction of tool path.
Powerful NC code editing options.
Program pre-scan checks for syntax errors and invalid codes prior to machining.
Utilities toolbar provides seamless integration with other Denford applications.
Simplified tool editing with multiple tool types.





VR SIMULATION FEATURES

Simulate real machining with highly detailed Virtual Reality.
Actual cutting of the virtual material in jog mode or program cycle.
Tables, bases and workholding fixtures are simulated.
Collision detection: objects change colour when cutter comes into contact with billet, workholding or tables.
Virtual feed & speed overrides can control the virtual machine.
Auto datum facility: Program can run without having to set the VR offsets.

MACHINE CONTROL FEATURES

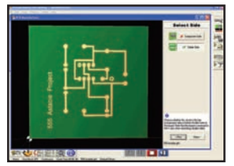
USB connectivity – Faster Data Transfer.
Continuous Path Manufacturing system pre-examines CNC moves to determine optimum change of direction.
One click datum positioning.
Material override mode – Automatically adjusts program feeds & speeds from a pre-set menu.
Intelligent program restart window allows restart of program from any line.
Denford Post Processor allows translation of NC programs between different controllers.

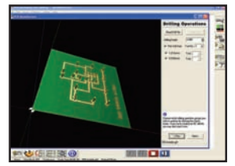
SYSTEM REQUIREMENTS

Please refer to page 13.

VR MILLING PCB IMPORT

Simple "Wizard" program with 3D Graphics.
Imports Gerber files from all major PCB design packages.
Imports Drill files from all major PCB design packages.
Multi pass machining strategy increases clearance around tracks.
Option to create drilling plan from pad hole diameters.
Option to centre pads, pilot holes or drill all holes.
Handles double sided boards.
Toolpath simulation.





VR MILLING 2D DXF IMPORT

Simple "Wizard" program with 2D Graphics.
Integrated Material and Tool Library.
Imports DXF and DWG files from all major CAD packages:- TechSoft, Pro/DESKTOP, ArtCAM, AutoCAD, CorelDraw etc.
Multiple cutter path strategies including:
Follow Path.
Inside Offset (cutter path offset by radius).
Outside Offset (cutter path offset by radius).
Area Clearance (Offset by outline) with programmable step-over.
Area Clearance (Raster) with programmable step over and angle.
Drilling cycles.
Intelligent selection of Islands.
Toolpath simulation.

SEAMLESS IMPORT OF TECHSOFT 2D DESIGN FILES:

The import routine with Denford's VR CNC Milling V5 operating software works with Techsoft 2D Design Tools Versions 1 & 2 and also with ALL major CAD packages. It is far more advanced than the Techsoft post-processor, supplied with Techsoft Version 1 and is far simpler to use.

ALL Denford machines operating with VR CNC Milling V5 are able to import designs drawn in Techsoft Versions 1 & 2, saved in DXF format, without any additional software or post processor being required.

VR Milling V5 has the facility to import DXF, DWG and Gerber files, which then allows multiple toolpaths to be created. The toolpaths are generated using the vector data imported and not colours, fill or line width. Six strategies can be chosen.

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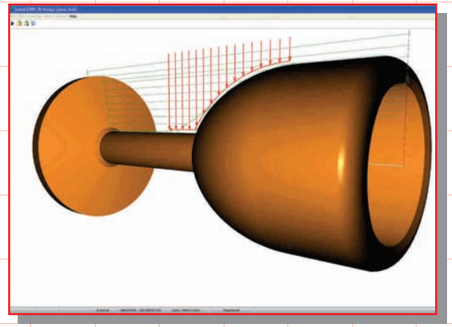
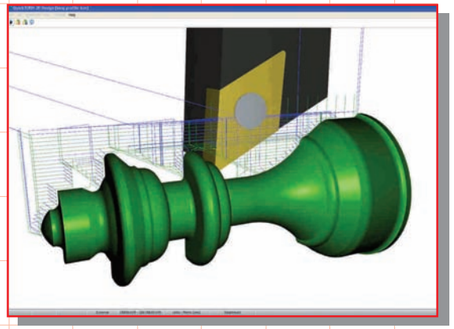
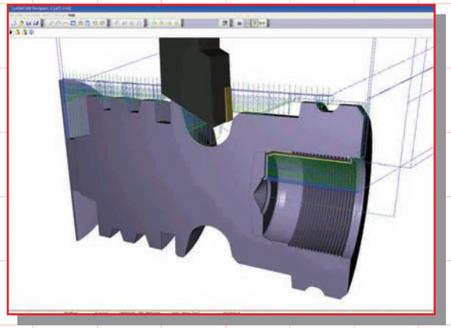
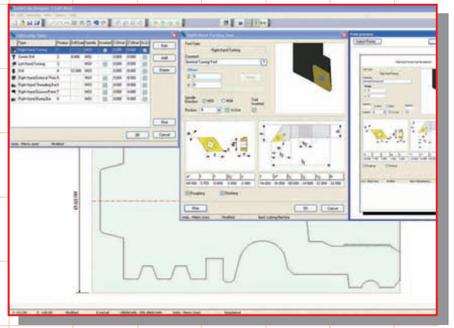
QuickTURN 2D DESIGN

CAD/CAM DESIGN AND MANUFACTURE SOFTWARE FOR LATHES









DENFORD

QuickTURN 2D DESIGN

CAD/CAM DESIGN AND MANUFACTURE SOFTWARE FOR LATHES

QuickTURN is an advanced yet simple to use, wizard based CAD/CAM package for Lathes. You can create or import 2D profiles, configure your tooling and material settings, then run the CAM wizard to create and simulate CNC Lathe toolpaths. The software features fully automatic toolpath generation, picking the most suitable tool from those available.

SOFTWARE

PROFILE DRAWING FEATURES

Create lines, arcs and threads on external and internal profiles.
Geometry is limited to the billet size and interacts with the rest of the profile to inhibit the creation of profiles that would be impossible to machine (eg, overhangs or breaking through from the internal profile).
DXF file import wizard allows designs from other CAD software to be turned into a profile ready for the CAM wizard.
Profile items can be edited interactively on screen, or by the property editor.
Profile dimensions update constantly.

TOOLING AND MATERIAL OPTIONS

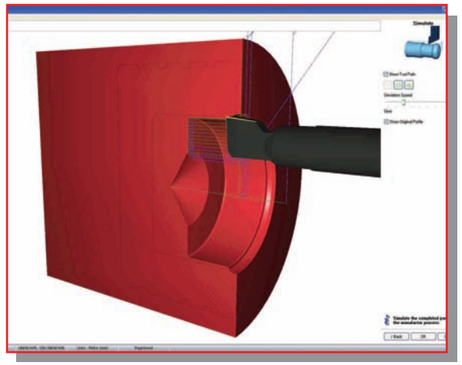
The tooling editor allows a wide range of tool types to be edited or created and features a live 3D preview of the tool.
The shape and size of tool tips and holders can be defined exactly as they are in the real world for a more realistic simulation.
Tools can be quickly deactivated so the CAM wizard will not pick them.
Material types can be configured quickly and easily to include feed, speed and cut depth settings for each of the tools available.
Default feed and speed settings for all tool types can be edited quickly by a unique override slide bar.
Tooling and material details can be printed out in summary or full detail.

SYSTEM REQUIREMENTS

IBM or 100% Compatible PC,
Pentium III, 1Ghz, 512MB RAM,
200MB Free Hard Disk Space,
Microsoft Windows XP; NT; 2000; Vista; Windows 7,
CD-ROM Drive,
OpenGL 3D Accelerator Graphics Card with 128MB RAM supporting at least 1024 x 768 screen resolution.
CNC Machines require USB Connection.

CAM WIZARD FEATURES

Material selector to alter feed, speed and cut depths.
Billet Material size editor in case the actual material is larger than the design.
Tooling selector quickly allows certain tools to be deactivated.
Toolpath generator automatically picks the tools and creates all internal/external cutting and threading operations.
Tool nose radius compensation is automatically applied to the generated toolpath for any turning, boring and grooving tools.
A 3D preview of the design also shows the generated toolpaths.
Each set of toolpaths can be deactivated if not required by the rearrange profile editor.
Toolpaths are post-processed to a CNC file suitable for a Denford Lathe.
A fully animated 3D cutting simulation of the tool paths lets you verify that the CNC program is ok.



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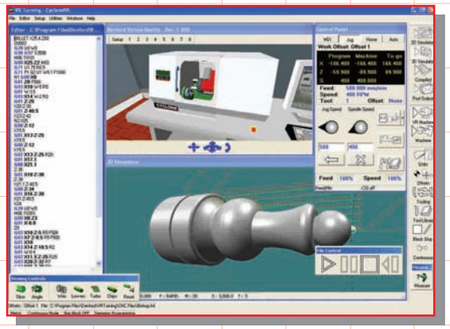
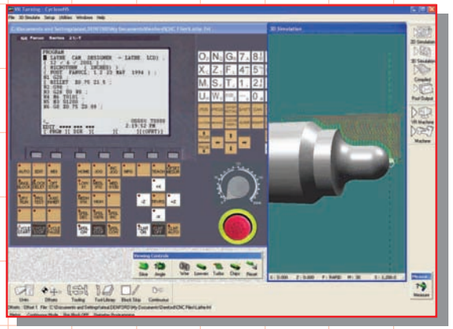
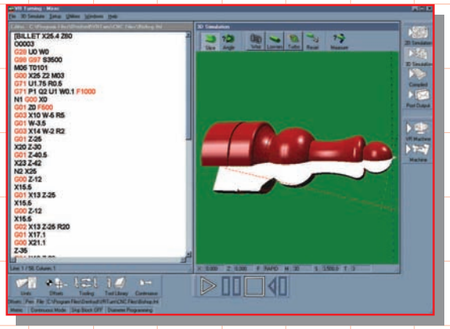
DENFORD

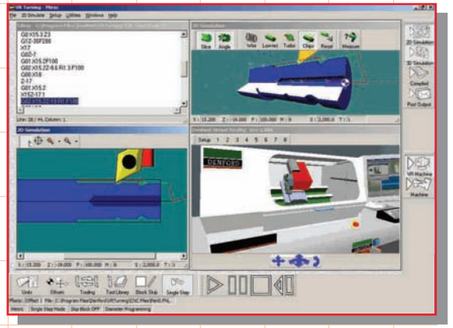
VR CNC Turning

CNC MACHINE CONTROL SOFTWARE









DENFORD

VR CNC Turning

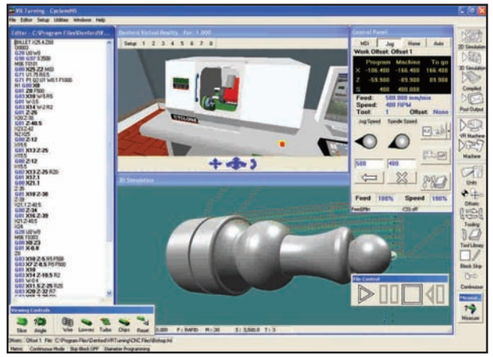
CNC MACHINE CONTROL SOFTWARE

VR CNC Turning is a Virtual Reality based CNC programming software package offering full machine control and Virtual Reality simulation of CNC Lathes. Features include customisable docking toolbars, comprehensive tooling management, colour formatting of NC code & powerful NC code modification options.

SOFTWARE

PROGRAMMING FEATURES

Customisable docking toolbars.
Comprehensive tooling management.
Colour formatting of NC code.
Powerful NC Code modification options.
Context sensitive G&M code help.

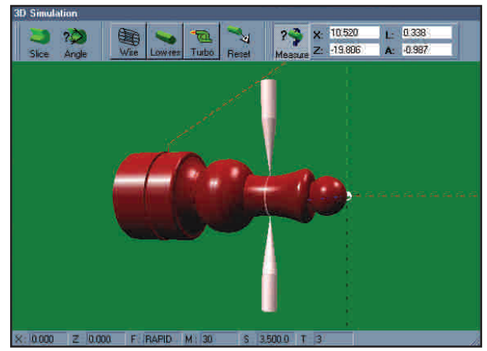


VR SIMULATION FEATURES

Dynamic rotation/zooming.
Colour coded move types and tooling.
Built in Virtual Micrometer to measure the simulated workpiece.
Unique "SourceTrack" technology for interaction between graphical data and NC Code.

MACHINE CONTROL FEATURES

VR CNC Turning is recommended for physical control of the full range of Denford CNC Lathes. Password protected machine parameters allows tailoring to suit individual machines.
The Denford Post Processor allows translation of NC programs between different controller types.



VIRTUAL REALITY FEATURES

Virtual Reality control encourages students to familiarise themselves with machining processes before physical manufacture. Includes a fully working Automatic Turret and library of machine options.

SYSTEM REQUIREMENTS

IBM or 100% Compatible PC,
Pentium III, 1Ghz, 512MB RAM,
200MB Free Hard Disk Space,
Microsoft Windows XP; NT; 2000; Vista; Windows 7,
CD-ROM Drive,
OpenGL 3D Accelerator Graphics Card with 128MB RAM supporting at least 1024 x 768 screen resolution.
CNC Machines require USB Connection.

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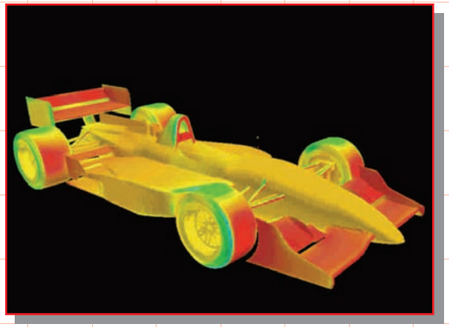
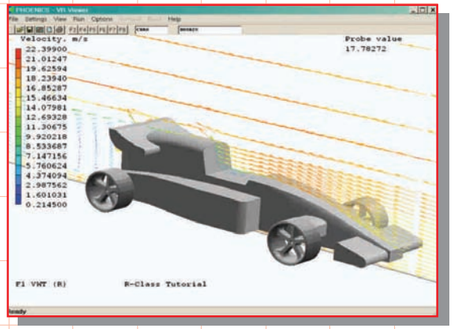
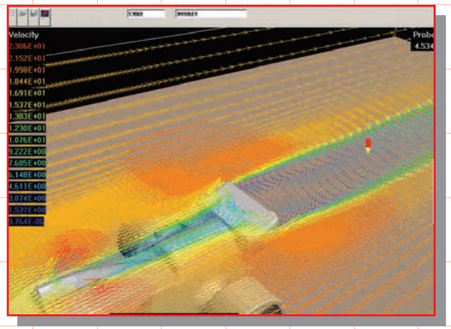
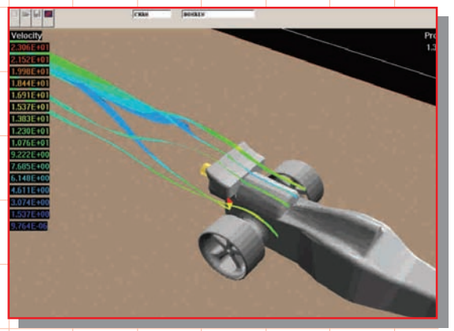
Virtual Wind Tunnel

F1 VWT ANALYSIS SOFTWARE









DENFORD

Virtual Wind Tunnel

F1 VWT ANALYSIS SOFTWARE

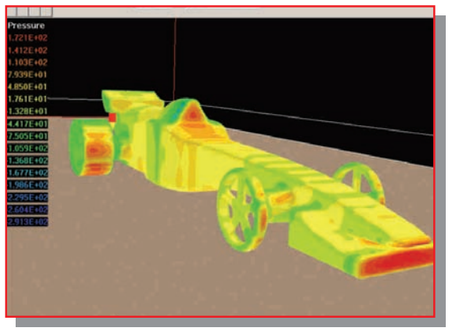
SOFTWARE

The Virtual Wind Tunnel provides an innovative and cost-effective way for schools and colleges to analyse and test their F1 cars. The results will provide you with information relating to the potential performance of your design, and provide guidance towards the areas for improvement.

For those involved in the F1 Challenge, the process is simple - students design their F1 car with 3D CAD software such as SolidWorks, and then export the STL file into the virtual wind tunnel software. The design is then displayed on-screen, allowing students to begin testing the designs for velocities, pressures, areas of turbulence, lift and drag by using vector plots, contour plots, streamlines and isosurfaces.

The Virtual Wind Tunnel Software uses a process called Computational Fluid Dynamics or CFD. This is basically the prediction of processes involving fluid flow, heat and mass transfer, chemical reaction and/or combustion. Anything that involves fluid flow can be simulated using these techniques, with varying degrees of accuracy.

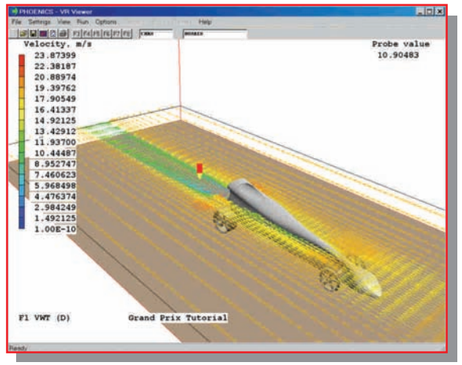
CFD is based upon the laws of physics, of conservation of mass, momentum and energy. The equations are embodied within a mathematical model and solved using a grid superimposed on the region of interest. For the F1 in Schools Challenge, this will be your “analyse process” - i.e. Step 2 of your team's progress towards racing success.



Your design will be imported from CAD software and displayed in our Formula 1 Virtual Wind Tunnel (F1 VWT) software which is already set up to receive it. You will alter initial settings, boundary conditions and other factors in the F1 VWT pre-processor, before starting the mathematical 'solver'. Once the solution has been reached, you will visualise the results interactively in graphical form, using the F1 VWT post-processor.

You will see velocities, pressures, areas of turbulence, lift and drag, using vector plots, contour plots, streamlines and iso-surfaces. The forces on the car body will be calculated and plotted to provide lift and drag data.

Industrial design companies use CFD techniques to assist with their prototype designs. What you do with the information is up to you ...



SYSTEM REQUIREMENTS

Any standard Windows PC (XP, VISTA or Windows 7) system. The software is both CPU- and RAM-intensive but 1GB RAM should suffice (& 2GB is better), and a 1GHz processor speed (as a minimum). No special graphics requirement. Both 32-bit and 64-bit systems are supported but, if required, 64-bit must be specified at time of order.

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CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

Ideal for use in conjunction with F1 IN SCHOOLS

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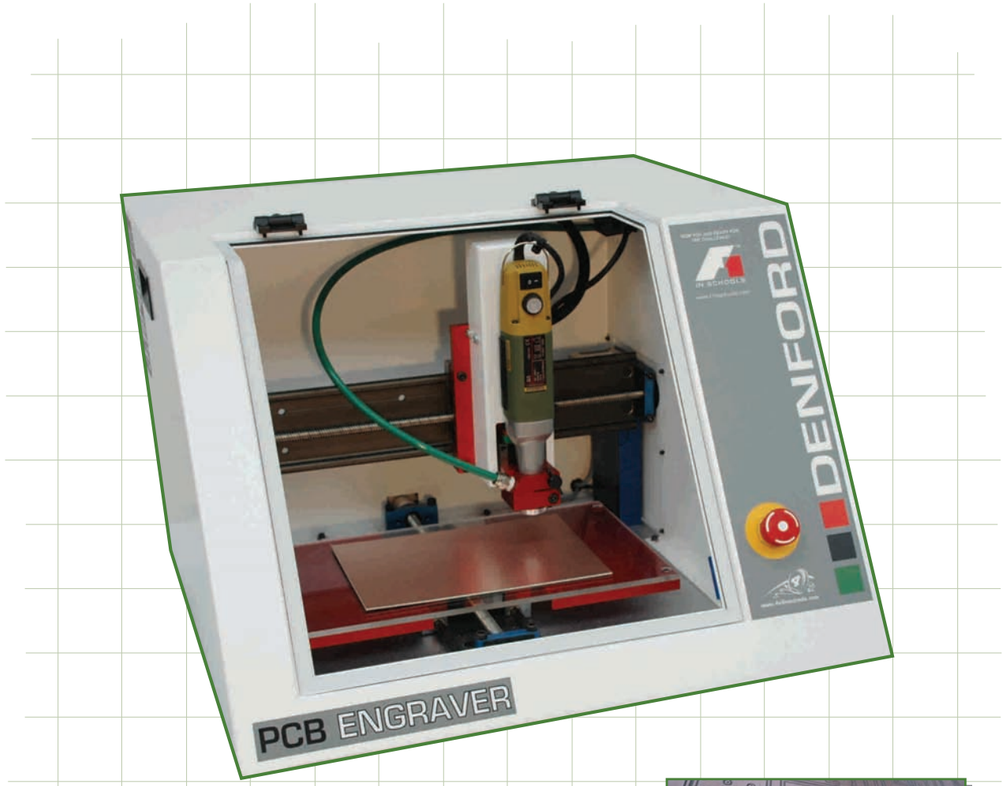
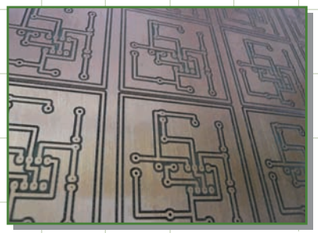
PCB Engraver

3 AXIS CNC PCB AND ENGRAVING MACHINE





The PCB Engraver is ideal for manufacture of PCB boards.

DENFORD

PCB Engraver

3 AXIS CNC PCB AND ENGRAVING MACHINE

A 3 axis CNC PCB and Engraving Machine with totally-enclosed guarding, suitable for all levels of education and training. The PCB Engraver is supplied with operating software incorporating Gerber and DXF import facilities. The PCB Engraver is ideal for cutting and engraving a range of resistant materials, including copper board, plastic and acrylic.

Denford's PCB Engraver is ideal for schools wishing to move away from traditional methods of chemical etching of PCB boards.

Denford's PCB Engraving machine features the latest 'Floating Head' technology. The Floating Head allows manufacture of PCB's, and engraving of uneven surfaces. The PCB Engraver is also ideal for batch manufacture of PCB boards.

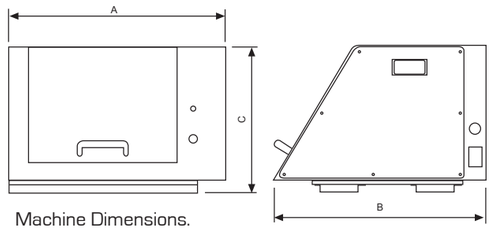
Tool changes are a simple process and allow drilling of larger holes, and the adjustable spindle speed and feedrate make the PCB Engraver ideal for cutting or engraving a range of resistant materials such as plastic, acrylic and copper board. The floating head combined with powerful new software, makes manufacture a quick and easy process.

THE PCB ENGRAVER COMES AS STANDARD WITH:

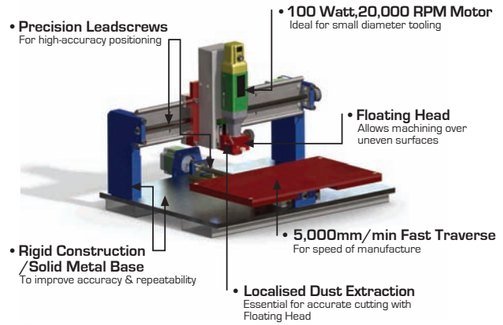
Powerful operating software that is simple to use and allows multiple designs to be made at once.
High speed spindle motor and floating head technology.
Basic tools and depth-setting device.
Installation and Instruction guides.
Outlet for dust extraction.
Sacrificial Table.
USB Connection.

CAD, CAM and/or PCB design software, such as Denford's QuickCAM 2D Design, will be required in order to make the files required for machining (CNC G-Code or Gerber).

N.B. To allow optimum performance of the Floating Head dust extraction is essential.



Machine Dimensions.



Please note, diagram for illustration purposes only.

MECHANICAL DETAILS	PCB Engraver
Machine Length (A)	570mm - 22.44in
Machine Depth (B)	585mm - 23.03in
Machine Height Bench Mounting (C)	385mm - 15.16in
Machine Weight	43kg - 94.80lb
Table Size	360 x 210mm - 14.17 x 8.27in
Travel X Axis	330mm - 13in
Travel Y Axis	210mm - 8.27in
Travel Z Axis	40mm - 1.57in
Float Z Axis	5mm - 0.20in
Beam Clearance	50mm - 1.97in
Max. Spindle Speed	20,000rpm
Spindle Speed Control	Manual
Max. Feed Rate	5000mm/min - 196.85in/min
Max. Contouring Feed Rate	1000mm/min - 39.37in/min
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase
Spindle Motor	100 Watts
Axes Motors	Stepper
Volts	230 Volts - 110/120VAC
Amps	5 Amps
Hz	50/60 Hz

MACHINES

CE APPROVED

To get you up and running, Denford also offer a range of CNC Routers, Lasers, Milling Machines and Lathes, together with tooling packages, workholding kits and courseware.

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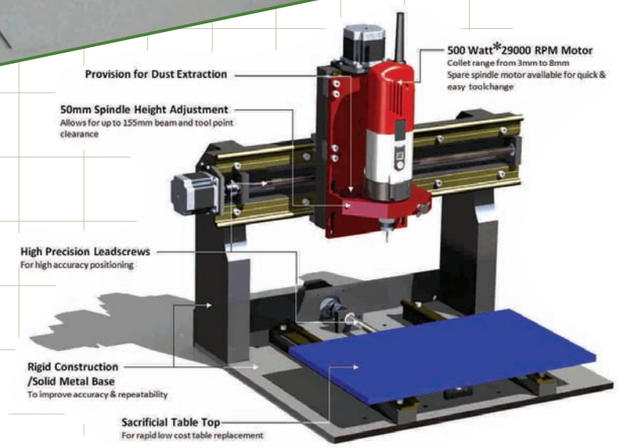
DENFORD

MRC 40

VERSATILE, AFFORDABLE ROUTER, MILLER & ENGRAVER

NEW

Shown with optional
Aluminium T-Slot Table



MRC 40

DENFORD

VERSATILE, AFFORDABLE ROUTER, MILLER & ENGRAVER

Denford's high-spec / low-cost solution for all your routing, milling and engraving needs. The MRC 40 has a powerful 500W* spindle motor and offers high speed manufacture linked with a large working envelope. This versatile machine handles small engraving jobs, and the large working envelope and Z axis capability (110mm) is perfect for the manufacture of large 3D designs. Set-up and tool changes are a simple process, and the MRC 40 has a host of optional extras for specialist applications.

The MRC 40 is available with everything you need to get you up and running immediately. In addition, there is a full range of optional items, including a "Resources Pack," which incorporates a package of mixed tools (2D, 3D & engraving tooling and collets), plus a variety of consumable materials such as 'protofoam' and cast acrylic billets.

MACHINES

THE MRC 40 COMES AS STANDARD WITH:

- VR CNC Milling Operating Software (PC not included)
- Powerful 500W* High Speed Spindle
- Sacrificial Table
- Outlet for Dust Extraction System
- 8mm and 1/4" Collets
- USB Connection

OPTIONAL EQUIPMENT INCLUDES:

- Resources Pack (including a variety of 2D, 3D & engraving tooling and drill bits, foam & acrylic billets, double-sided tape)
- QuickCAM 2D Design Software
- QuickCAM PRO Software
- Aluminium T-Slot Table and Clamping Kit (factory fitted)
- F1 in Schools Car Manufacturing Fixture (only available when T-Slot Table fitted)
- Spare Spindle Motor Assembly for quick tool change
- Vacuum Pads x 2 with Integral Pump
- Floating Head for PCB Manufacture
- Universal Machine Bench & Computer Support Arm

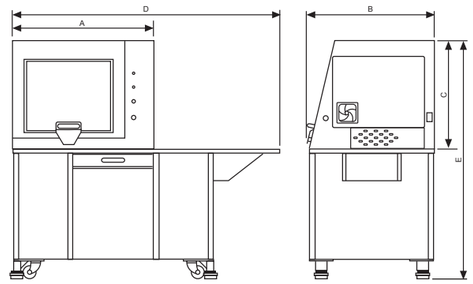
SYSTEM REQUIREMENTS

Please refer to page 13.

RECOMMENDED SOFTWARE PROGRAMS

Please refer to Compact 1000 PRO see page 27.

*110v machines will be fitted with an 800W variable speed motor



Machine Dimensions.

SEAMLESS IMPORT OF TECHSOFT 2D DESIGN FILES:

The import routine with Denford's VR CNC Milling V5 operating software works with Techsoft 2D Design Tools Versions 1 & 2 and also with ALL major CAD packages. It is far more advanced than the Techsoft post-processor, supplied with Techsoft Version 1 and is far simpler to use.

ALL Denford machines operating with VR CNC Milling V5 are able to import designs drawn in Techsoft Versions 1 & 2, saved in DXF format, **without any additional software or post processor being required.**

VR Milling V5 has the facility to import DXF, DWG and Gerber files, which then allows multiple toolpaths to be created. The toolpaths are generated using the vector data imported and not colours, fill or line width. Six strategies can be chosen.

MECHANICAL DETAILS	MRC 40	
Machine Length (A)	875mm - 34.45in	
Machine Depth (B)	750mm - 29.53in	
Machine Height (C)	675mm - 26.57in	
Length with Optional Base (D)	1600mm - 62.99in	
Height with Optional Base (E)	1440mm - 56.69	
Machine Weight	113kg - 249.12lb	
Machine Weight with Opt. Base	227kg - 500.45lb	
Table Size	400 x 240mm - 15.75 x 9.45in	
Travel X Axis	400mm - 15.75in	
Travel Y Axis	240mm - 9.45in	
Travel Z Axis	110mm - 4.33in	
Beam Clearance (max work height)	155mm - 6.10in	
Max. Spindle Speed	29000rpm	
Feed Overide	0 - 150%	
Max. Feed Rate	5000mm/min - 196.85in/min	
Max. 3D Profiling	4500mm/min - 177.17in/min	
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase	
Spindle Motor	500 Watts* - 0.67HP	
Axes Motors	Stepper	
Volts	230VAC	110/120VAC
Amps	5 Amps	10 Amps
Hz	50/60 Hz	
Electric Connection	13 A Socket	

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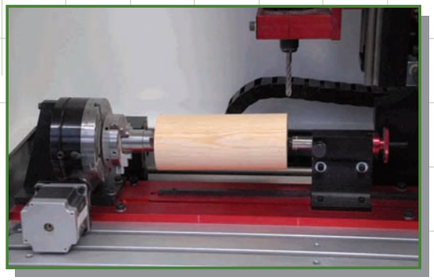
DENFORD

Compact 1000 PRO

COMPACT METAL CUTTING 3 AXIS CNC ROUTER



4th Axis Programmable Rotary Fixture
See Router Accessories on page 37.

Shown with optional universal bench and computer support extension (PC not included)

DENFORD

Compact 1000 PRO

COMPACT METAL CUTTING 3 AXIS CNC ROUTER

A compact 3 axis CNC Router with totally enclosed interlocking guard, suitable for all levels of education and training. The Compact 1000 Pro is ideal for cutting a range of resistant materials such as hard and soft wood, plastic, modelling foam, acrylic and prototyping materials as well as non-ferrous metals.

MACHINES

THE COMPACT 1000 PRO COME AS STANDARD WITH:

VR CNC Milling Operating Software (PC not included).
Aluminium T Slot Table.
Outlet for Dust Extraction System.
Workholding Clamps.
Installation and Instruction Manuals.
USB Connection.

OPTIONAL EQUIPMENT INCLUDES:

Vacuum Pads, F1 in Schools Car Manufacturing Fixture, 4th Axis Programmable Rotary Fixture, 3D Scanning Attachment, Universal Machine Bench and Dust Extraction Unit.

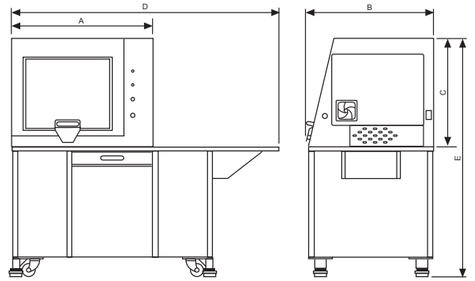
SYSTEM REQUIREMENTS

Please refer to page 13.

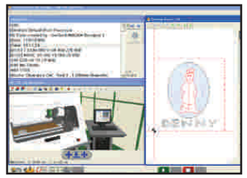
RECOMMENDED SOFTWARE PROGRAMS

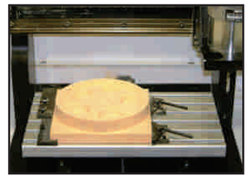
All software necessary to control the Compact 1000 Pro is included. Also included is a seat of QuickCAM 2D Design - an easy to use 2D CAD package.

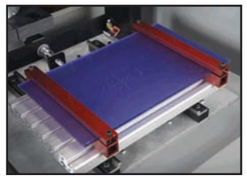
- For 2D Designs - will link to packages able to export 2D dxf files such as QuickCAM 2D Design, TechSoft Design Tools - 2D Design, CorelDraw etc.
- For 3D Designs - will link to packages able to export STL files such as Pro/DESKTOP, ArtCAM and Autodesk Inventor SolidWorks etc. when used in conjunction with QuickCAM Pro.



Machine Dimensions.







MECHANICAL DETAILS	COMPACT 1000 PRO	
Machine Length (A)	875mm - 34.45in	
Machine Depth (B)	750mm - 29.53in	
Machine Height (C)	675mm - 26.57in	
Length with Optional Base (D)	1600mm - 62.99in	
Height with Optional Base (E)	1440mm - 56.69in	
Machine Weight	116kg - 255.74lb	
Machine Weight with Opt. Base	230kg - 506.06lb	
Table Size	400 x 240mm - 15.75 x 9.45in	
Travel X Axis	400mm - 15.75in	
Travel Y Axis	240mm - 9.45in	
Travel Z Axis	110mm - 4.33in	
Beam Clearance	140mm - 5.51in	
Max. Spindle Speed	24000rpm	
Non-Ferrous Metal Cutting	Yes	
Spindle Speed Control	Yes	
Spindle Speed Override	Yes	
Max. Feed Rate	5000mm/min - 196.85in/min	
Max. 3D Profiling	4500mm/min - 177.17in/min	
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase	
Spindle Motor	1.0kW - 1.34HP	
Axes Motors	Stepper	
Volts	230VAC	110/120VAC
Amps	5 Amps	10 Amps
Hz	50/60 Hz	
Electric Connection	13A Socket	

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DENFORD

Router 2600/2600 PRO

3 AXIS CNC ROUTER

Shown with optional universal bench and optional computer support extension. (PC not included)

NEW

Optional 5 Station Automatic Tool Changer See Routing Accessories page 34.

DENFORD

Router 2600/2600 PRO

3 AXIS CNC ROUTER

A 3 axis CNC Router with totally enclosed interlocking guard, suitable for all levels of education and training. With its large capacity the Router 2600 is ideal for cutting a range of resistant materials such as hard and soft wood, plastic, modelling foam, acrylic and prototyping material. Both models are available with 5 Station Automatic Tool Changer; and in addition, the Router 2600 Pro can cut non-ferrous metals.

MACHINES

THE ROUTER 2600/2600 PRO COME AS STANDARD WITH:

VR CNC Milling Operating Software (PC not included).
Aluminium T Slot Table.
Installation and Instruction Manuals.
Outlet for Dust Extraction System.
Workholding Clamps.
USB Connection.

OPTIONAL EQUIPMENT INCLUDES:

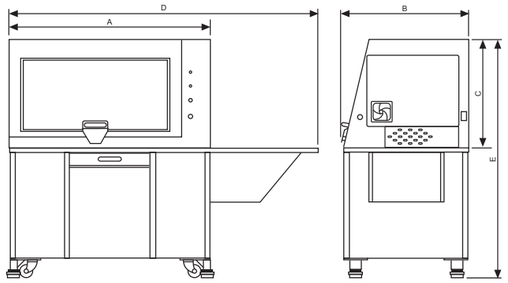
5 Station Automatic Tool Changer, Vacuum Bed, F1 in Schools Car Manufacturing Fixture, 4th Axis Programmable Rotary Fixture, 3D Scanning Attachment, Dust Extraction Unit and Universal Machine Bench.

SYSTEM REQUIREMENTS

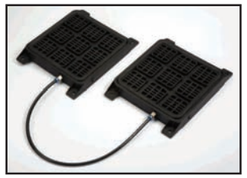
Please refer to page 13.

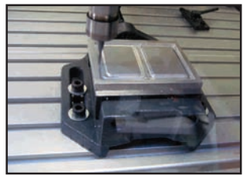
RECOMMENDED SOFTWARE PROGRAMS

All software necessary to control the Router 2600/ Router 2600 Pro is included. Also included is a seat of QuickCAM 2D Design - an easy to use 2D CAD package.
• For 2D Designs - will link to packages able to export 2D dxf files such as QuickCAM 2D Design, TechSoft Design Tools - 2D Design, CorelDraw etc.
• For 3D Designs - will link to packages able to export STL files such as Pro/DESKTOP, ArtCAM and Autodesk Inventor SolidWorks etc. when used in conjunction with QuickCAM Pro.



Machine Dimensions.





MECHANICAL DETAILS	ROUTER 2600	ROUTER 2600 PRO
Machine Length (A)	1200mm - 47.24in	
Machine Depth (B)	750mm - 29.53in	
Machine Height (C)	675mm - 26.57in	
Length with Optional PC Arm (D)	1850mm - 72.83in	
Height with Optional Base (E)	1440mm - 56.69in	
Machine Weight	150kg - 330.69lb	
Machine Weight with Opt. Base	255kg - 562.18lb	
Table Size	700 x 430mm - 27.56 x 16.93in	
Travel X Axis	600mm - 23.62in	
Travel Y Axis	400mm - 15.75in	
Travel Z Axis	110mm 4.33in	
Beam Clearance	150mm - 5.91in	
Max. Spindle Speed	29000rpm	24000rpm
Non-Ferrous Metal Cutting	No	Yes
Spindle Speed Control	No	Yes
Spindle Speed Override	No	Yes
Max. Feed Rate	5000mm/min - 196.85in/min	
Max. 3D Profiling	4500mm/min - 177.17in/min	
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase	
Spindle Motor	1.0kW - 1.34HP	
Axes Motors	Stepper	
Volts	230VAC	110/120VAC
Amps	5 Amps	10 Amps
Hz	50/60 Hz	
Electric Connection	13A Socket	

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CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

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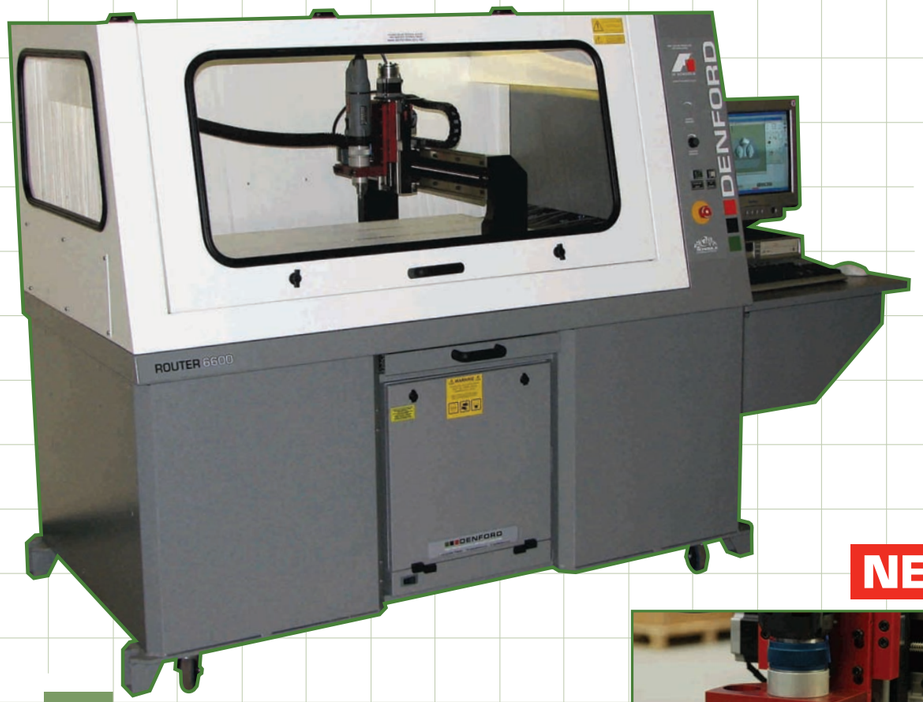
DENFORD

Router 6600/6600 PRO

LARGE FORMAT, HIGH SPEED FLOOR-STANDING ROUTER

NEW



Shown with optional computer support extension. (PC not included)

NEW

Optional 5 Station Automatic Tool Changer
See Routing Accessories page 34.

CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

DENFORD

Router 6600/6600 PRO

LARGE FORMAT, HIGH SPEED FLOOR-STANDING ROUTER

A large format, high speed Router, complete with built-in machine bench, offering large machining capacity (table size 1080 x 640mm) at an exceptional price. The Router 6600 / 6600 Pro is specifically designed for education and training and is ideal for cutting a range of resistant materials such as hard and soft wood, plastic, modelling foam, acrylic and prototyping material. Both models are available with 5 Station Automatic Tool Changer; and in addition, the Router 6600 Pro can cut non-ferrous metals.

MACHINES

THE ROUTER 6600/6600 PRO COME AS STANDARD WITH:

VR CNC Milling Operating Software (PC not included).
Universal Machine Bench.
Aluminium T Slot Table.
Installation and Instruction Manuals.
Outlet for Dust Extraction System.
Workholding Clamps.
USB Connection.

OPTIONAL EQUIPMENT INCLUDES:

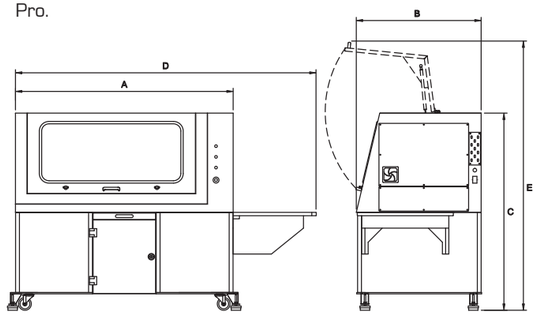
5 Station Automatic Tool Changer,
Large Format Vacuum Bed, Vacuum Pads, F1 in Schools Car Manufacturing Fixture, 4th Axis Programmable Rotary Fixture, 3D Scanning Attachment, Dust Extraction Unit, Computer Support Extention.

SYSTEM REQUIREMENTS

Please refer to page 13.

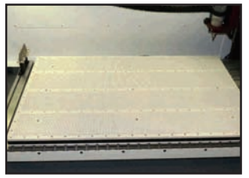
RECOMMENDED SOFTWARE PROGRAMS

All software necessary to control the Router 6600/ Router 6600 Pro is included. Also included is a seat of QuickCAM 2D Design - an easy to use 2D CAD package.
• For 2D Designs - will link to packages able to export 2D dxf files such as QuickCAM 2D Design, TechSoft Design Tools - 2D Design, CorelDraw etc.
• For 3D Designs - will link to packages able to export STL files such as Pro/DESKTOP, ArtCAM and Autodesk Inventor SolidWorks etc. when used in conjunction with QuickCAM Pro.



Machine Dimensions.



MECHANICAL DETAILS	ROUTER 6600	ROUTER 6600 PRO
Machine Length (A)	1700mm - 66.93in	
Machine Depth (B)	975mm - 38.39in	
Machine Height (C)	1540mm - 60.63in	
Length with Optional PC Arm (D)	2350mm - 92.52in	
Height with Door Open (E)	2100mm - 82.68in	
Machine Weight	430kg - 947.99lb	
Table Size	1080 x 640mm - 42.52 x 25.20in	
Travel X Axis	1000mm - 39.37in	
Travel Y Axis	600mm - 23.62in	
Travel Z Axis	110mm - 4.33in	
Beam Clearance	148mm - 5.83in	
Max. Spindle Speed	29000rpm	24000rpm
Non-Ferrous Metal Cutting	No	Yes
Spindle Speed Control	No	Yes
Spindle Speed Override	No	Yes
Max. Feed Rate	5000mm/min - 196.85in/min	
Max. 3D Profiling	4500mm/min - 177.17in/min	
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase	
Spindle Motor	1.0kW - 1.34HP	
Axes Motors	Stepper	
Volts	230VAC	110/120VAC
Amps	5 Amps	10 Amps
Hz	50/60 Hz	
Electric Connection	13A Socket	

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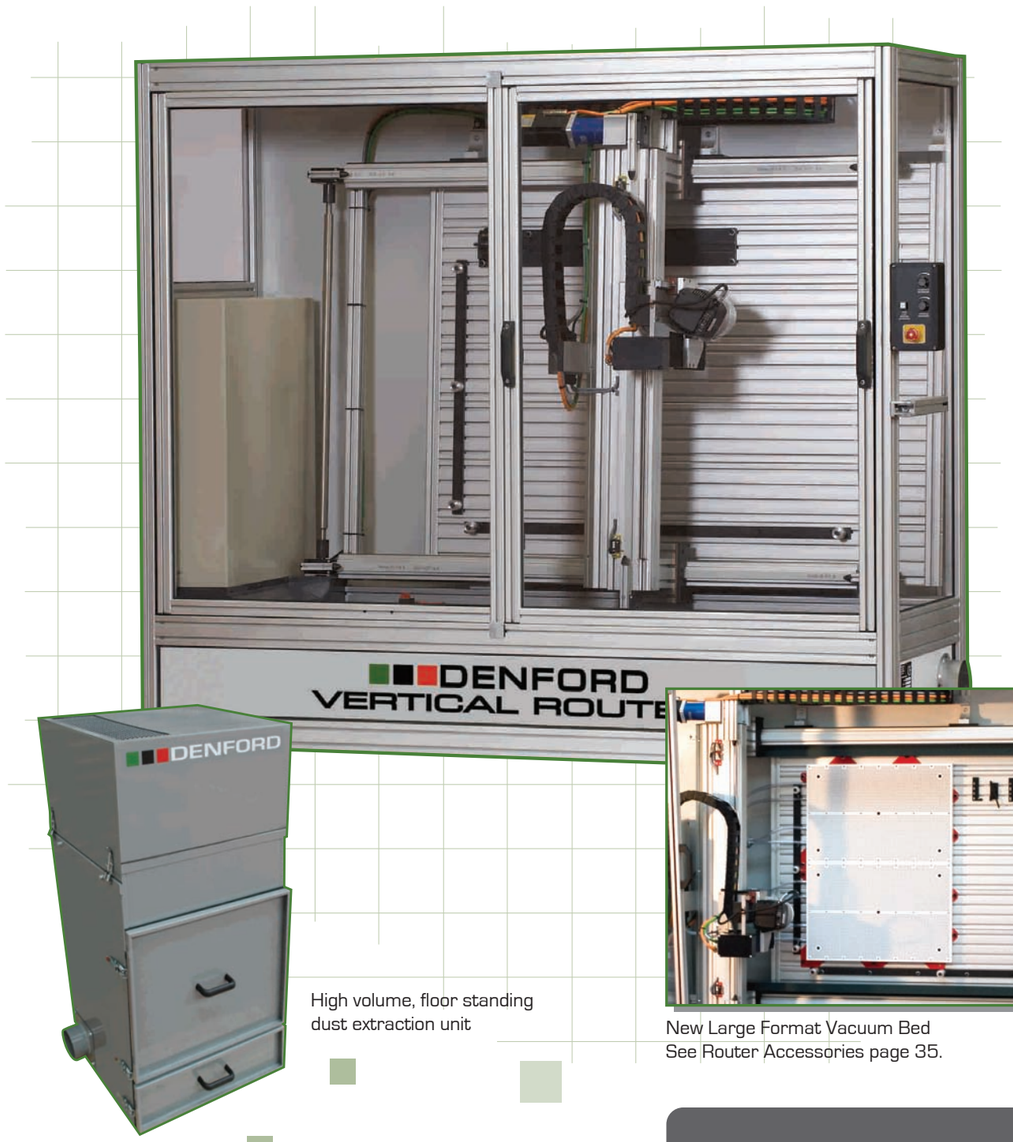
DENFORD

Vertical Router

LARGE FORMAT VERTICAL 3 AXIS CNC ROUTER



High volume, floor standing dust extraction unit

New Large Format Vacuum Bed
See Router Accessories page 35.

DENFORD

Vertical Router

LARGE FORMAT VERTICAL 3 AXIS CNC ROUTER

The Denford Vertical Router is a large format CNC Router, combining high speed machining over a large working area with space saving engineering. The 1200 x 800 mm working envelope makes it ideal for the manufacture of large-scale items such as furniture parts and door panels. The machine is well equipped with a high power 21,000 rpm spindle motor and AC Servo Motors allowing contouring and rapid feeds of 20 metres per minute in all axes. Inspired design provides excellent production capabilities and ease of installation, as the Vertical Router will fit through a standard door frame.

MACHINES

THE VERTICAL ROUTER COMES AS STANDARD WITH:

VR CNC Milling Operating Software (PC not included).
Aluminium T Slot Table.
Outlet for Dust Extraction System.
Maintenance and Instruction Manuals.
Workholding Clamps.
USB Connection.

OPTIONAL EQUIPMENT INCLUDES:

Hinged Arm Computer Shelf, Dust Extraction Unit, F1 in Schools Car Manufacturing Fixture, 4th Axis Programmable Rotary Fixture, and Workholding Clamps.

KEY FEATURES INCLUDE:

Incredible 1200 x 800 x 150 mm working area.
21,000 rpm spindle motor.
Fully closed loop servo system for increased machining accuracy.
20 metres per minute Feed/Rapid rate.
Will fit through a standard door frame.

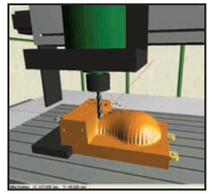
SYSTEM REQUIREMENTS

Please refer to page 13.

RECOMMENDED SOFTWARE PROGRAMS

All software necessary to control the Vertical Router is included. Also included is a seat of QuickCAM 2D Design - an easy to use 2D CAD package.

- For 2D Designs - will link to packages able to export 2D dxf files such as QuickCAM 2D Design, Techsoft Design Tools - 2D Design, CorelDraw etc.
- For 3D Designs - will link to packages able to export STL files such as Pro/DESKTOP, ArtCAM and Autodesk Inventor SolidWorks etc. when used in conjunction with QuickCAM Pro.



Will fit through a standard door

MECHANICAL DETAILS	VERTICAL ROUTER
Machine Width	2200mm - 86.61in
Machine Depth	750mm - 29.53in
Machine Height	1920mm - 75.59in
Machine Weight	450kg - 992lb
Table Size	1300 x 900mm - 51.18 x 35.43in
Travel X Axis	1200mm - 47.24in
Travel Y Axis	800mm - 31.50in
Travel Z Axis	150mm - 5.91in
Max. Spindle Speed	21,000rpm
Feed Rate (all axes)	20 metres/min - 65.62ft/min
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase
Spindle Motor	1.7kW - 2.28HP
Axes Motors	Servo
Volts	230 Volts
Amps	13 Amps
Hz	50/60Hz
Electrical Connection	16A Hard Wired

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DENFORD

Router Accessories

FLOATING HEAD, AUTOMATIC TOOL CHANGERS, VACUUM BEDS, CLAMPING KITS, FIXTURES AND DUST EXTRACTION UNITS

PCB Production with a Floating Head

Denford's 'Floating Head' option permits manufacture of PCB's and engraving of uneven surfaces, and is ideal for batch manufacture of PCB boards.
The floating head comes complete with a quick change facility for a swift interchange with the standard issue router motor.
The cutting tool profiles around the outside of the tracks creating an isolation gap. The weight of the spindle motor plunges the cutter into the PCB board, and depth is set by a plastic disc that floats on the material surface. A float up to 5mm is possible using this technology.

5 STATION AUTOMATIC TOOL CHANGER

The newly launched 5 Station Automatic Tool Changer comes complete with 5 toolholders & 8 collets, and offers the following benefits:
-Saves time wasted in repeatedly setting tool offsets
-Gives superior surface finish with added fine detail
-No additional software required, as the 5 Station ATC is compatible with all Denford's 2D & 3D Software.
Available as an optional extra on the Router 6600 / Pro and the Router 2600 / Pro.

DUST PRO 100 EXTRACTION UNIT

Denford's Large Capacity Dust Extraction system is a purpose-designed dust control system for use with the MRC 40, Compact 1000 Pro and Router 2600/Pro. It can be used as a stand-alone unit, or incorporated within Denford's Universal Machine Bench, as shown above.
The unit is highly effective in removing airborne dust and light particles produced during machining, and is recommended for schools where MDF is regularly used. The unit comes ready to use including a removable / re-usable dust collection bag and separate HEPA filter.

Dimensions: H530mm W460mm D670mm

DUST PRO 50 EXTRACTION UNIT

Particle and dust extraction unit suitable for use with the MRC 40, Compact 1000 Pro and the Router 2600/Pro.
This purpose designed unit is ideal for extraction of airborne dust created during the manufacturing process, and also to vacuum the machine after the cutting process is complete.
The unit comes complete with castors, flexible hose and fittings.

Dimensions: H530mm W300mm D300mm

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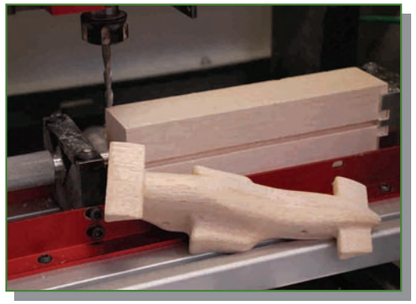
DENFORD

Router Accessories

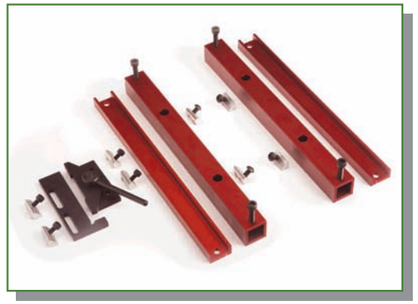
A comprehensive range of router accessories including a Floating Head for PCB manufacture, Automatic Tool Changing, Vacuum Bed and Dust Extraction options to suit the entire range of Denford CNC Routers.
The range includes an F1 in Schools Car Manufacturing Fixture suitable for production of Formula One Class and Bloodhound SSC Class Cars.

MACHINES



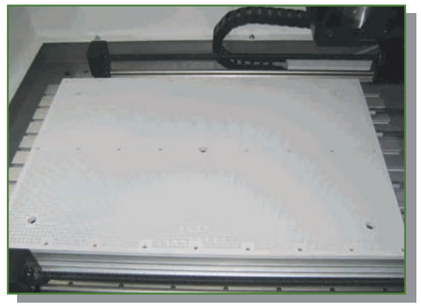
F1 IN SCHOOLS CAR FIXTURE

The F1 in Schools car manufacturing fixture comes as standard with 2 clamping systems to enable the manufacture of Bloodhound SSC and Formula One Class cars. The fixture clamps directly to the T-slotted table on the MRC 40*, Compact 1000 Pro and Router 2600/Pro and is also suitable for use on the VMC 1300.
*T-slotted table not standard equipment with MRC 40.



ADDITIONAL CLAMPING KIT

Additional Clamping Kit includes 2 Parallel Clamping Rails with T-Nuts, (allowing the workpiece to be raised from the bed, to permit 'through' machining), 1 additional L Bracket and Lever Clamp with T-Nuts.

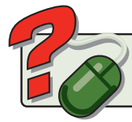


LARGE FORMAT VACUUM BED

Suitable for use with the Router 2600/Pro, and the Vertical Router, the large format (600 x 400mm) bed is supplied with an external vacuum pump. Suitable for 'blind' machining and 'through' machining when used with sacrificial mat.
Dual-bed option with manifold is available for use with the Vertical Router, details on application.

VAC PADS

Vac Pads are suitable for the MRC 40, Compact 1000 Pro and Router 2600 / Pro. The package includes 2 vacuum pads and an integral vacuum pump.
Suitable for 'blind' machining only.



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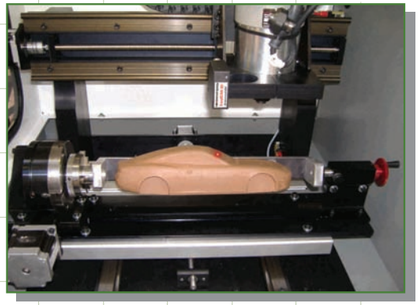
DENFORD

Router Accessories

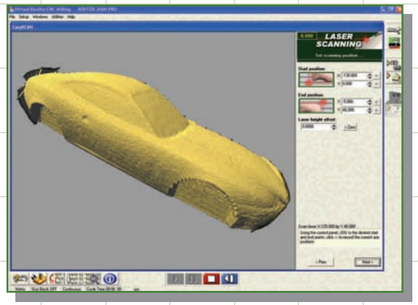
EasySCAN 3D
3D SCANNING ATTACHMENT & SOFTWARE FOR DENFORD ROUTERS

3D SCANNING ATTACHMENT & SOFTWARE

1. Select a model



2. Scan the model



3. Manipulate scan data

4. Manufacture on a Denford CNC Router

5. Completed model

Denford's EasySCAN 3D Scanner attachment has full 360 degree scanning capability when used in conjunction with Denford's Rotary Fixture, and is suitable for use with the entire range of Denford CNC Routers.

The EasySCAN 3D package incorporates user friendly, wizard based software for scanning, editing and saving 3D models, prior to manufacture on a Denford CNC Router. EasySCAN 3D is ideal for Reverse Engineering applications.

3D Scanning & Manufacturing Package see page 48 - 49.

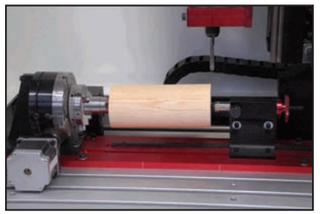
DENFORD

Router Accessories

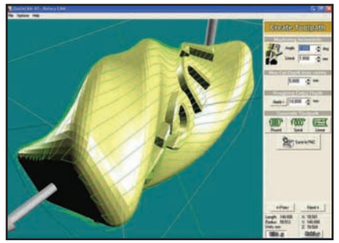
4TH AXIS PROGRAMMABLE ROTARY FIXTURE
COMPLETE WITH QUICKCAM 4D MILLING SOFTWARE

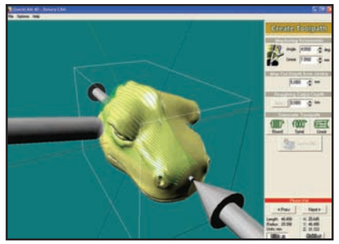
MACHINES

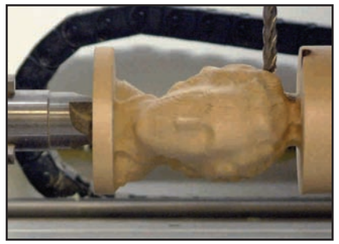
4TH AXIS PROGRAMMABLE ROTARY FIXTURE



for use with
MRC 40,
Compact 1000 Pro,
Router 2600/Pro
Router 6600/Pro
Vertical Router.







QUICKCAM 4D MILLING SOFTWARE

(Supplied FREE with the Denford 4th Axis Programmable Rotary Fixture.)

An easy to use, wizard based CAM package specifically designed for use with the Denford 4th axis programmable rotary fixture. QuickCAM 4D Milling imports 3D files from most 3D CAD packages and converts these into 4th axis CNC program data for output to the range of Denford CNC Routers. Users are guided through a series of simple steps, defining billet size, model orientation, machining strategy and axis of rotation before generating the appropriate CNC output file.

QUICKCAM 4D MILLING FEATURES

True 3Dimensional model-making capabilities. Seamless integration with VR CNC Milling software. Circular, spiral and linear machining strategies. User definable limits allow for workholding avoidance. Supports both roughing and finishing paths. Resize, orientate and centre the model. Autoscale of model to fit the workpiece.

SUPPORTED OUTPUT FORMATS

CNC controllers for Denford CNC Routers.

SUPPORTED INPUT FORMATS

3D Stereo Lithography *(STL) files
*Used by Pro/DESKTOP, ArtCAM, Autodesk Inventor and Solid Edge, Autodesk 3D Studio Files (3DS), SolidWorks.

SYSTEM REQUIREMENTS

IBM or 100% Compatible PC,
Pentium III, 1Ghz, 512MB RAM,
200MB Free Hard Disk Space,
Microsoft Windows XP; NT; 2000; Vista; Windows 7,
CD-ROM Drive,
OpenGL 3D Accelerator Graphics Card with 128MB RAM supporting at least 1024 x 768 screen resolution.
CNC Machines require USB Connection.

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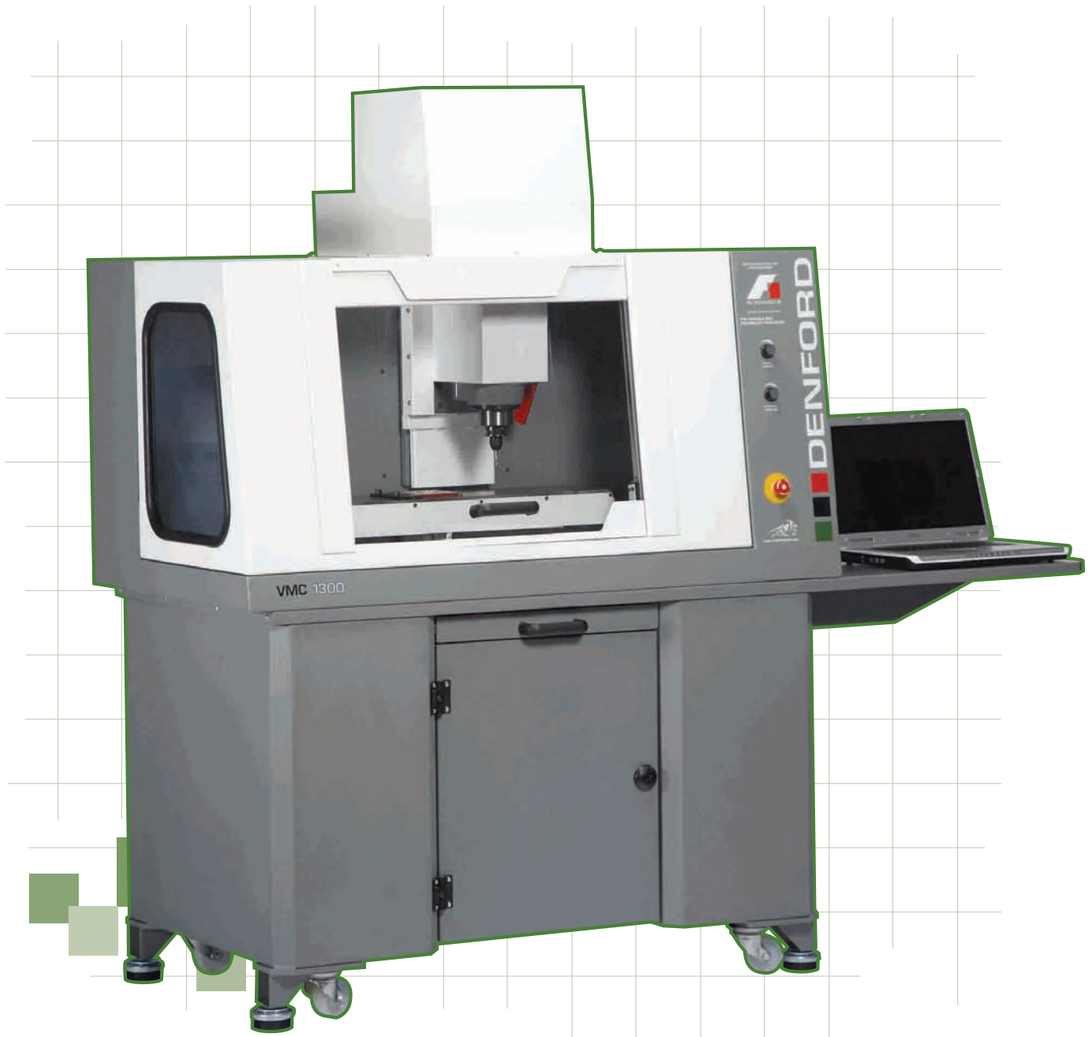
DENFORD

VMC 1300

CNC MILLING MACHINE



Shown with optional universal bench and optional computer support extension. (PC not included)

DENFORD

VMC 1300

CNC MILLING MACHINE

A 3 axis CNC milling machine available either floor standing or for bench mounting, with totally enclosed high visibility interlocking guard, suitable for all levels of education and training. Programmable spindle speeds and feedrates make the VMC 1300 ideal for cutting a range of resistant materials such as wax, plastic, acrylic, free cutting alloys, aluminium and steel.

MACHINES

THE VMC 1300 COMES AS STANDARD WITH:

VR CNC Milling Operating Software (PC not included).
Installation and Instruction Manuals.
Power Drawbar with Manual Actuation.
Workholding Clamps
USB Connection.

OPTIONAL EQUIPMENT INCLUDES:

Table Mounted 6 Station Automatic Tool Changer (which can be removed to enable full 375mm X axis travel), Pneumatic Vice and Guard, Spray Mist Coolant, and Universal Machine Bench. 4th Axis Programmable Rotary Fixture is also available.

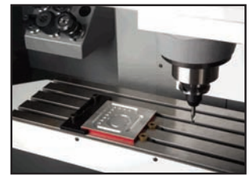
SYSTEM REQUIREMENTS

Please refer to page 13.

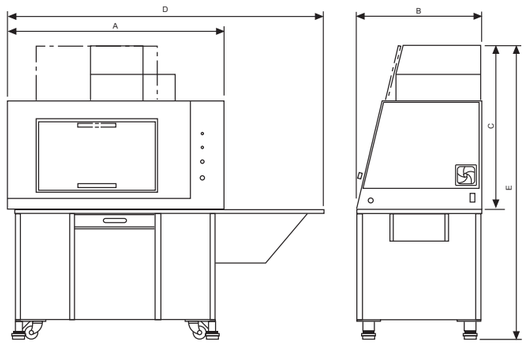
RECOMMENDED SOFTWARE PROGRAMS

All software necessary to control the VMC 1300 is included. Also included is a seat of QuickCAM 2D Design - an easy to use 2D CAD package.

- For 2D Designs - will link to packages able to export 2D dxf files such as QuickCAM 2D Design, TechSoft Design Tools - 2D Design, CorelDraw etc.
- For 3D Designs - will link to packages able to export STL files such as Pro/DESKTOP, ArtCAM and Autodesk Inventor SolidWorks etc. when used in conjunction with QuickCAM Pro.



MECHANICAL DETAILS	VMC1300	VMC1300 PRO
Machine Length (A)	1300mm - 51.18in	
Machine Depth (B)	750mm - 29.53in	
Machine Height (C)	1000mm - 39.37in	
Length with Optional PC Arm (D)	1900mm - 74.80lb	
Height with Optional Base (E)	1765mm - 69.49in	
Machine Weight	353kg - 778.23lb	
Machine Weight with Opt. Base	456kg - 1005.31lb	
Table Size	600 x 180mm - 23.62 x 7.09in	
Travel X Axis Without ATC	375mm - 14.76in	
Travel X Axis With ATC Fitted	250mm - 9.84in	
Travel Y Axis	150mm - 5.91in	
Travel Z Axis	235mm - 9.25in	
Table to Spindle	305mm - 12.01in	
Max. Spindle Speed	4000rpm	6000rpm
Max. Feed Rate	5000mm/min - 196.85in/min	
Max. 3D Profiling	4500mm/min - 177.17in/min	
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase	
Spindle Motor	1.1kW - 1.48HP	1.6kW - 2.15HP
Axes Motors	Stepper	
Volts	230VAC	110/120VAC
Amps	5 Amps	10 Amps
Hz	50/60Hz	
Electrical Connection	13A Socket	



Machine Dimensions.

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CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

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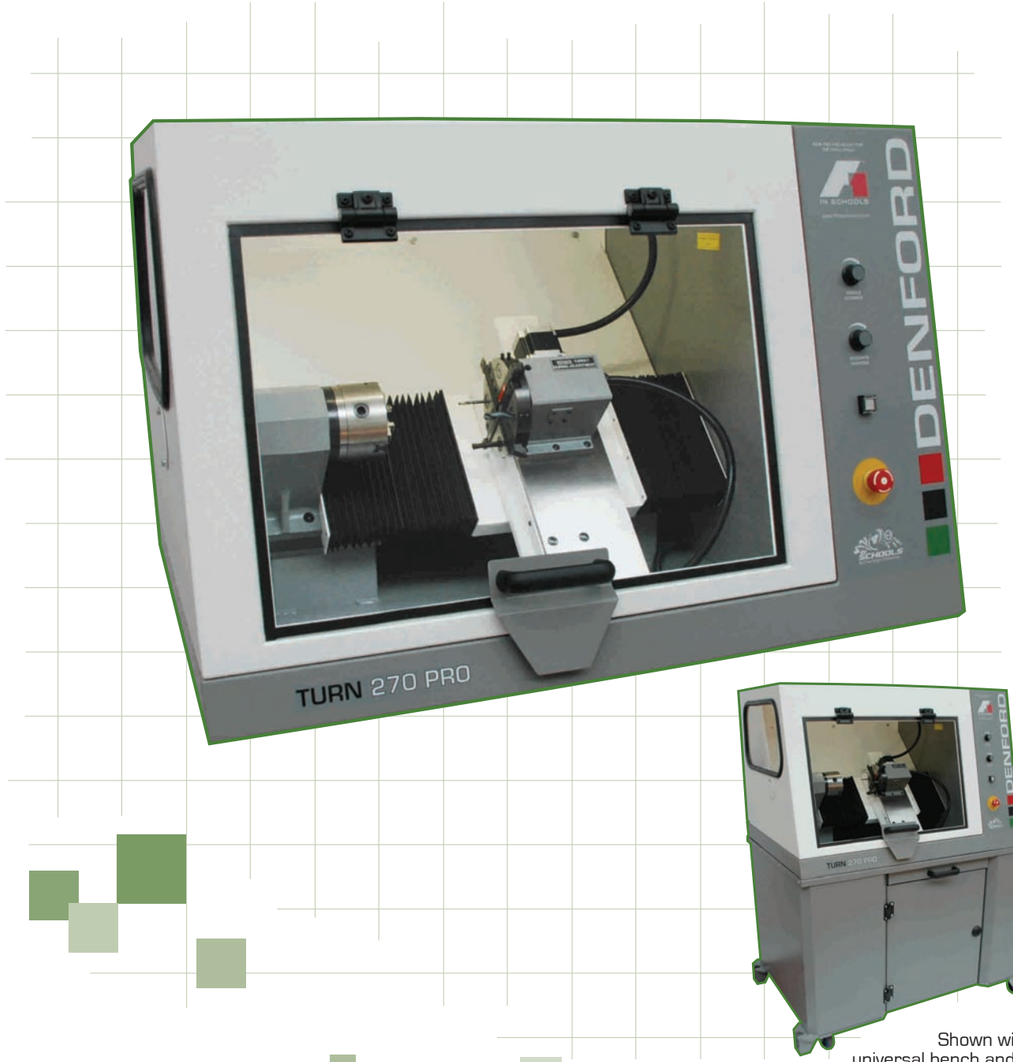
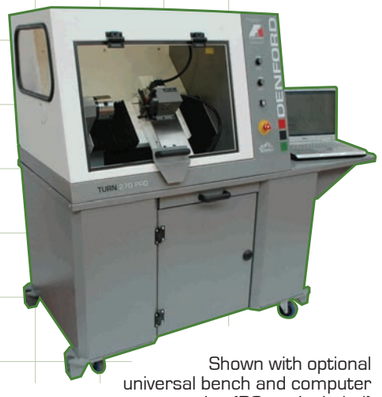
DENFORD

Turn 270 PRO

CNC LATHE





Shown with optional universal bench and computer support extension (PC not included)

DENFORD

Turn 270 PRO

CNC LATHE

A compact 2 axis CNC Lathe with totally enclosed high-visibility interlocking guard, suitable for all levels of education and training. Programmable spindle speeds and feedrates make the Turn 270 Pro ideal for cutting a range of resistant materials such as wax, plastic, acrylic, free cutting alloys, aluminum and steel.

MACHINES

THE TURN 270 PRO COMES AS STANDARD WITH:

VR CNC Turning Operating Software (PC not included).
Installation and Instruction Manuals.
Quick Change Toolpost and Holder.
Manual Self Centring 100mm (3.94in) 3 Jaw Chuck.

OPTIONAL EQUIPMENT INCLUDES:

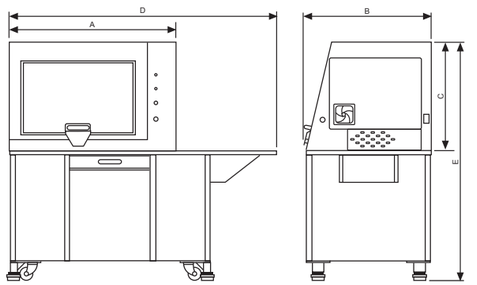
8 Station Programmable Turret, Pneumatic Chuck and Guard, Spray Mist Coolant, Tail Stock, and Universal Machine Bench.

SYSTEM REQUIREMENTS

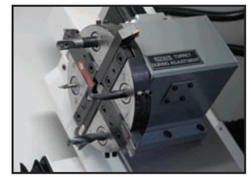
IBM or 100% Compatible PC,
Pentium III, 1Ghz, 512MB RAM,
200MB Free Hard Disk Space,
Microsoft Windows XP; NT; 2000; Vista; Windows 7,
CD-ROM Drive,
OpenGL 3D Accelerator Graphics Card with 128MB RAM supporting at least 1024 x 768 screen resolution.
CNC Machines require USB Connection.

RECOMMENDED SOFTWARE PROGRAMS

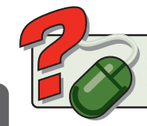
All software necessary to control the Turn 270 Pro is included. Also included is a seat of QuickTURN 2D Design - an easy to use CAD package.



Machine Dimensions.



MECHANICAL DETAILS	TURN 270 PRO	
Machine Length (A)	1000mm - 39.37in	
Machine Depth (B)	750mm - 29.53in	
Machine Height Bench Mounting (C)	675mm - 26.57in	
Length with Optional Base (D)	1600mm - 62.99in	
Height with Optional Base (E)	1440mm - 56.69in	
Machine Weight	140kg - 308.65lb	
Machine Weight with Optional Base	255kg - 562.18	
Swing Over Bed	190mm - 7.48in	
Swing Over Cross Slide	100mm - 3.94in	
Distance Between Centres	270mm - 10.63in	
Travel X Axis	150mm - 5.91in	
Travel Z Axis	225mm - 8.86in	
Max. Spindle Speed	4000rpm	
Max. Feed Rate	2500mm/min - 98.43in/min	
Spindle Bore	26mm - 1.02in	
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase	
Spindle Motor	1.5kW - 2.01HP	
Axes Motors	Stepper	
Volts	230VAC	110/120VAC
Amps	5 Amps	10 Amps
Hz	50/60 Hz	
Electrical Socket	13A Socket	



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DENFORD

Micromill
CNC MILLING MACHINE

Microturn
CNC LATHE

Benches on this page are no longer available and are shown for illustration purposes only.

DENFORD

Micromill and Microturn
CNC MILLING MACHINE AND CNC LATHE

A compact 3 axis CNC milling machine and 2 axis CNC lathe, both with totally enclosed interlocking guards - the ideal introduction to small part CNC manufacture. Variable spindle speeds and feedrates make the MicroMill and MicroTurn ideal for cutting resistant materials such as wax, plastic, acrylic, aluminum and free cutting alloys.

MACHINES

THE MICROMILL COMES AS STANDARD WITH:

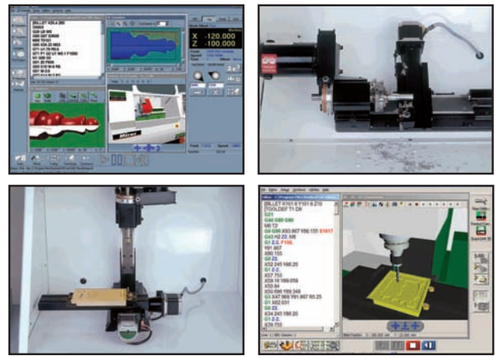
VR CNC Milling Operating Software (PC not included).
Installation and Instruction Manuals.
Maintenance Tools.
Clamping Kit.
1/4" Dia Milling Collet.
5/16" Dia Drawbar.
3/16" Slot Drill 1/4" Shank.
Set of Metric Allen Keys.

THE MICROTURN COMES AS STANDARD WITH:

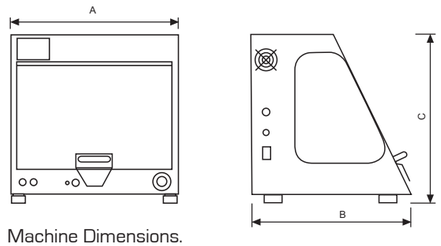
VR CNC Turning Operating Software (PC not included).
Installation and Instruction Manuals.
Maintenance Tools.
1 1/2" Standard Toolpost.
Tailstock.
3" Dia Spindle Faceplate.
No. 1 Morse Taper, Spindle Centre.
No. 0 Morse Taper, Tailstock Centre.
2 1/2" Dia 3 Jaw Chuck & 2 Tommy Bars.
1/4" Braised Carbide Tip Cutting Tool, Right Handed.

OPTIONAL EXTRAS INCLUDE:
Quickchange toolpost and thread cutting package.

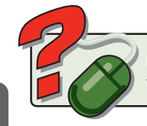
SYSTEM REQUIREMENTS
For MicroMill please refer to page 13.
For MicroTurn please refer to page 19.



MECHANICAL DETAILS	MICROMILL		MICROTURN	
Machine Length (A)	685mm - 26.97in		685mm - 26.97in	
Machine Depth (B)	654mm - 25.75in		654mm - 25.75in	
Machine Height (C)	688mm - 27.09in		688mm - 27.09in	
Machine Weight	50kg - 110lbs		57kg - 125lbs	
Table Size	70x330mm - 2.76x12.99in		n/a	
Swing Over Bed	n/a		90mm (150mm opt) - 3.5in	
Travel X Axis	228mm - 8.98in		50mm - 1.97in	
Travel Y Axis	130mm - 5.12in		n/a	
Travel Z Axis	160mm - 6.30in		126mm - 4.96in	
Table to Spindle	182mm - 7.17in		n/a	
Max. Spindle Speed	2800rpm		2800rpm	
Max. Feed Rate	750mm/min - 29.53in/min		600mm/min - 23.62in/min	
Max. 3D Profiling	600mm/min - 23.62in/min		n/a	
Mains Supply Requirements* (* Alternative supplies available on request)	Single Phase		Single Phase	
Spindle Motor	0.37kW - 0.50HP		0.37kW - 0.50HP	
Axes Motors	Stepper		Stepper	
Volts	230VAC	110/120VAC	230VAC	110/120VAC
Amps	5 Amps	10 Amps	5 Amps	10 Amps
Hz	50/60 Hz		50/60 Hz	
Electrical Connection	13A Socket		13A Socket	



Machine Dimensions.



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DENFORD

Universal Machine Benches

Universal Machine Bench VMC/0600B

Shown with optional computer support extension.
(Machine & PC not included)

Universal Machine Bench VMC/0600WB

DENFORD

Universal Machine Benches

Denford's Universal Machine Benches are suitable for use with our entire range of CNC Routers, Mills and Lathes. The benches are designed to accommodate varying requirements, and to integrate with existing furniture in a traditional workshop environment, or an IT suite.

MACHINES

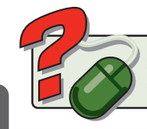
UNIVERSAL MACHINE BENCH

The Universal Machine Bench comes with wheels, anti-vibration pads, storage cupboard, tooling drawer and is suitable for a range of bench top machines including:-

VMC 1300, Router 2600/Pro	Product Code:	VMC/0600B
Optional - Computer Support Extension	Product Code:	VMC/0602
Optional - Integrated Dust Pro 100	Product Code:	ADVXU
MRC 40, Compact 1000 Pro		
Includes - Computer Support Extension	Product Code:	MRCWB
Optional - Integrated Dust Pro 100	Product Code:	ADVXU
Turn 270 Pro		
Includes - Computer Support Extension	Product Code:	TRNWB
Stand-Alone Workbench	Product Code:	VMC/0600WB
Optional - Computer Support Extension	Product Code:	VMC/0602
Optional - Integrated Dust Pro 100	Product Code:	ADVXU

Bench Size: 1200mm x 750mm x 790mm (WxDxH) 47.24in x 29.53in x 31.10in
Colour: Grey
Weight: 103kg - 227.08lbs (with integrated dust extraction unit 163kg - 359.35lbs)

Universal Machine Bench VMC/0600WB
Shown with integrated Dust Pro 100.



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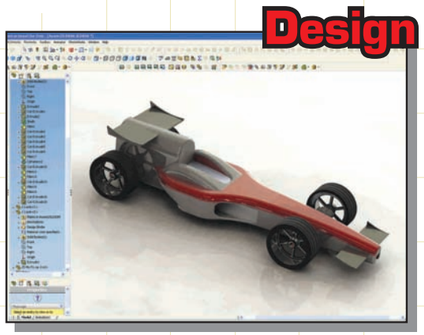
PACKAGE

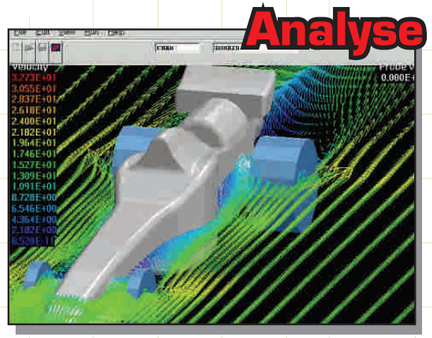
THE FORMULA ONE TECHNOLOGY CHALLENGE IN SCHOOLS

DENFORD

F1 in Schools Package

A COMPLETE PACKAGE INCORPORATING DESIGN, ANALYSE, MAKE, TEST & RACE





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CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

CE APPROVED

Ideal for use in conjunction with THE FORMULA ONE TECHNOLOGY CHALLENGE IN SCHOOLS

DENFORD

F1 in Schools Package

A COMPLETE PACKAGE INCORPORATING DESIGN, ANALYSE, MAKE, TEST & RACE.

PACKAGE

The F1 in Schools Technology Challenge stimulates a student's interest in, and understanding of, the entire process of design and manufacture. Through involvement in the F1 in Schools project, students will gain first hand experience of teamwork, and communication, whilst encouraging individual flair and confidence. The F1 in Schools project provides students with the opportunity to reflect industrial working practice of developing a product from concept, to prototype to production.

In support of the F1 in Schools Technology Challenge, Denford offer an F1 Package, which includes all of the equipment required to get you up and running for this innovative educational project - covering Design, Analyse, Make, Test & Race.

A brief overview:

1. **Design**: Design the car body using SolidWorks 3D CAD software. SolidWorks is available as a multiple user licence.
2. **Analyse:** Use Virtual Reality Wind Tunnel Software and SolidWorks to analyse car designs for velocities, pressures, vibration analysis, lift & drag and much more.
3. **Make:** After the 3D model is complete, import the design into Denford's QuickCAM Pro software to generate the CNC file. Graphically verify the CNC file by using Denford's Virtual Reality CNC routing software and then manufacture the car using Denford's F1 Car Manufacturing Fixture on either the MRC40, Compact 1000 Pro or Router 2600/Pro CNC Router.
4. **Test:** The manufactured car can be tested for drag efficiency and air flow around the vehicle with the Scout Wind Tunnel & Fog Maestro Smoke Generator.
5. **Race:** Put the cars to their ultimate test and judge their speed over a measured distance with the F1 in Schools 24m Elevated Race Track and F1 Race System.

The F1 in Schools Package:

DESIGN:
SolidWorks Education Edition - 3D Design, Drafting & Simulation Software (available separately - see page 6 & 7).
QuickCAM Pro Advanced Milling/Routing CAM software (site licence).

ANALYSE:
Virtual Reality Wind Tunnel (VRWT) Software (single licence).

MAKE:
CNC Machine Options
- Router 2600/Router 2600 Pro (Metal Cutting).
- Compact 1000 Pro (Metal Cutting).
- MRC 40

Car Manufacture Fixture
F1 in Schools Car Manufacturing Fixture for both Bloodhound SSC* & Formula One Class** cars.

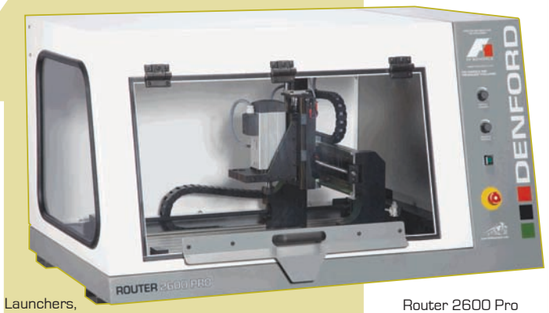
Consumables - Bloodhound SSC & Formula One Class Cars
Formula One Class Balsa Wood Blanks - Pack of 20.
Fusion Wheels - Black - Pack of 100.
Screw Eyes 1" - Pack of 100.
Long Axles - 65mm - Pack of 100.
Straw Wheel Spacers - Pack of 500.
Washers - 4mm - Pack of 100.
Decal Stickers - Pack of 25 sheets.
Paint Stand.

Bloodhound SSC Class Balsa Wood Blanks - Pack of 20.
PX Wheels - Rear - Black - Pack of 100.
LX Wheels - Front - Black - Pack of 100.
Screw Eyes 1/4" - Pack of 100.
Short Axles - 43mm - Pack of 100.

TEST:
Scout Wind Tunnel.
Fog Maestro Smoke Generator including 1Ltr. Fog Fluid.

RACE:
Elevated Race Track - 24m track.
F1 Race System - x1 Start & Finish Gate, x2 Launch Triggers, x2 Launchers, x1 Power Supply, x1 Control Box, Race Time Management System.
8 Gram Competition Cartridges (pack of 120).

Compact 1000 Pro Router



Router 2600 Pro

For the full range of F1 consumables & race equipment see pages 52 - 57.

Outside the UK, package contents may vary. Please refer to your dealer/agent.

***Bloodhound SSC Class formerly D-Type** ****Formula One Class formerly R-Type**

Get help, advice and share designs online
www.denfordata.com/bb

To get you up and running, Denford also offer a range of CNC Routers, Lasers, Milling Machines and Lathes, together with tooling packages, workholding kits and courseware.

Total Commitment to Manufacturing Technology in Education and Training Worldwide. ISO9001 compliant.

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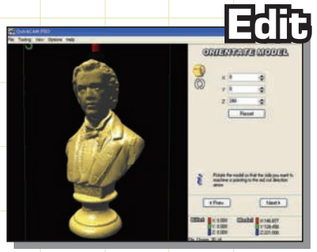
PACKAGE

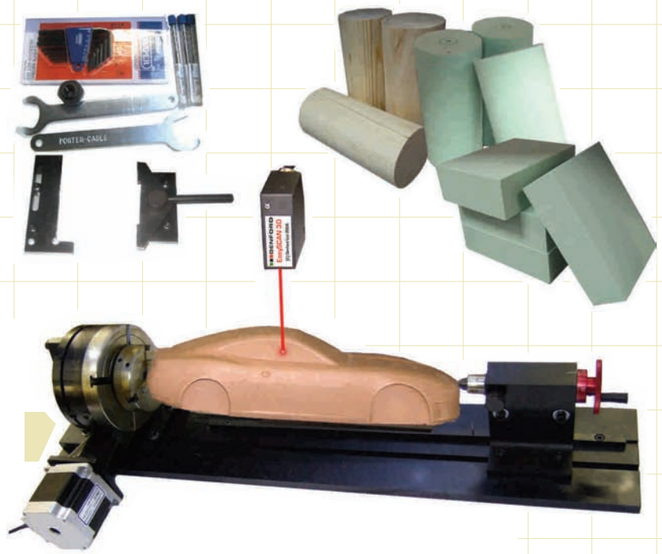
DENFORD

3D Scanning & Manufacturing

COMPLETE 3D LASER SCANNING AND MANUFACTURING PACKAGE

Router 2600 Pro shown.
Example only.





PACKAGE

DENFORD

3D Scanning & Manufacturing Package

COMPLETE 3D LASER SCANNING AND MANUFACTURING PACKAGE

A complete 3D Scanning and Manufacturing package which includes hardware and user friendly wizard based software for scanning, editing and saving of 3D models, prior to manufacture on a Denford CNC Router. Ideal for Reverse Engineering Applications.

Denford's EasySCAN - 3D Laser Scanning and Manufacturing Package comes with everything you need to laser scan and digitise objects in 3 dimensions, directly into your PC and then manufacture on one of Denford's CNC Routers.

It is an easy to use, cost effective solution for reverse engineering applications, that gives fantastic results every time....

The EasySCAN 3D Laser Scanning and Manufacturing Package incorporates user-friendly wizard based software for scanning, editing and saving of 3D models, prior to manufacture on a Denford CNC Router. The EasySCAN 3D Laser Scanner attachment has full 360-degree scanning capability when used in conjunction with the supplied 4th Axis Programmable Rotary Fixture.

Denford's EasySCAN 3D Laser Scanning and Manufacturing Package includes:

Wizard Based Software for scanning, editing and saving 3D models before manufacture.

CNC Machine Options

- Router 2600 Pro (Metal Cutting)
- Router 2600
- Compact 1000 Pro (Metal Cutting)
- MRC 40

4th Axis Programmable Rotary Fixture including QuickCAM 4D Milling CAM Software.

Tooling for use with a range of resistant materials including hardwood, softwood, plastic, modelling foam, acrylic and prototyping materials.

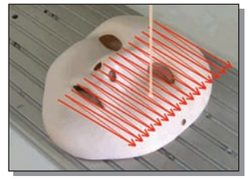
A set of work holding clamps.

Consumables package including:

50 Round Pine Billets (65mm dia x 150mm long)

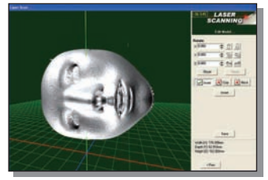
50 High Density Foam Billets (70mm dia x 150mm long)

50 High Density Foam Billets (150 x 110 x 45mm)

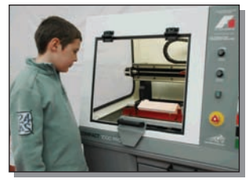


Scan in your chosen model (or create your own)

View results with the EasySCAN software



Manipulate the scanned data



Manufacture on the CNC Router

The completed model

Get help, advice and share designs online
www.denfordata.com/bb

CAD/CAM Software : VR CNC Software : CNC Routers : Mills : Lathes : PCB/Engraving Machines : Benches & Accessories : Laser Cutters/Engravers Rapid Prototyping : Concept Modelling : 3D Scanning Solutions : Cutter / Plotters

CE APPROVED

Ideal for use in conjunction with GT IN SCHOOLS

To get you up and running, Denford also offer a range of CNC Routers, Lasers, Milling Machines and Lathes, together with tooling packages, workholding kits and courseware.

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RESOURCE

DENFORD

F1 Curriculum Resource

CROSS-CURRICULAR RESOURCES FOR KEY SUBJECTS

What is F1 in Schools?

F1 in Schools, the Formula One (F1) challenge, is a multi-disciplinary contest involving over 35 countries. Students plan, design, manufacture, test and then race miniature balsa wood racing cars powered by compressed gas.

For more information, visit **www.f1inschools.co.uk**

DENFORD

Recognised by the D fE as an effective tool for raising achievement

RESOURCE

NEW

Offer students the chance to become world champions

F1 Curriculum Resources, 9 - 19 Bloodhound and F1 Classes

» Run a cross-curricular project based on a global competition
» Gain ready-to-use resources for key curriculum subjects
» Get involved in a huge sporting phenomenon

The **F1 in Schools Curriculum Resources** present the opportunity for your School or College to:

- bring learning to life.
- motivate students.
- set up cross-curricular learning easily and quickly
- reward your students at a regional, national and international level.

Benefit the whole School/College

The F1 in Schools Resources can help your School / College to:

- improve motivation - the engaging nature of the activities and the glamorous topic makes students want to learn.
- raise achievement - the element of competition makes students want to do well.
- encourage independent learning - the open-ended nature of the project enables young people's talent to flourish - whatever their interests.
- involve students of all ages and abilities - The resource helps to embed the competition across the School / College.

» Support hard-pressed staff
» Benefit from well-structured ready-to-use resources
» Use across the School and College, in a range of subjects

Gain a huge range of materials

Fully referenced to the 11-19 Diplomas, National Curriculum (including enterprise education) and relevant GCSE specifications, the F1 in Schools Curriculum Resources include materials for students 9-19. Available in three editions:
9-14 Bloodhound SSC Class
11-14 F1 Class
15-19 F1 Class

Each resource contains detailed session plans, clear learning objectives, high quality resources and extensive guidance on managing, implementing and assessing the project, helping you to:

- set up the project to suit your establishment
- provide differentiated activities
- assess students' work
- monitor students' progress.

Support cross-curricular learning

Colleges and schools are used to setting up project-based or enquiry-based learning. However, the F1 in Schools Curriculum Resource makes it easy, presenting a fully supported, tried and tested project, which is ready to use.

All available online, each year

Each F1 in Schools Curriculum Resource is accessed online and is sold with a full site licence for use in your School / College for the subscription period (12 months). The licence enables you to share and copy the materials throughout your School / College. A wealth of editable digital files is included which can be viewed onscreen or printed on demand.

To view a demo, visit: www.fscr.pearson.co.uk/ and enter one of the following:

9-14 Bloodhound SSC Class
user name: demo password: password

9-14 F1 Class
user name: demo1114 password: password

15-19 F1 Class : Coming Soon

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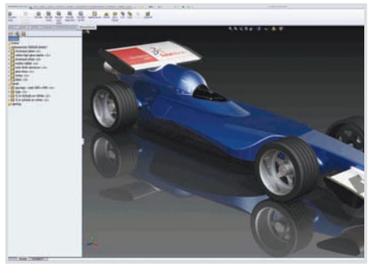


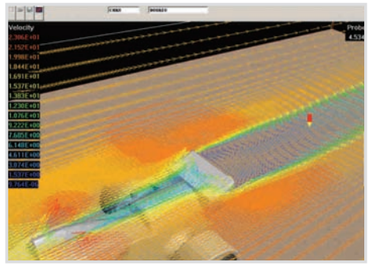
DESIGN

SolidWorks Education Edition

Classroom Licence Package for Secondary Schools (any school below college/university level)	
60 user network licence +1 standalone licence	SWL61
Special 10% 'F1 in Schools Participant' DISCOUNT	

QuickCAM Pro

An advanced, yet simple to use, wizard-based CAM package, which is used to create cutter paths for machining 3D parts on a milling machine or router.	
Site Licence	BI01806P



ANALYSE

Virtual Wind Tunnel

F1 VWT Analysis Software	
Single Seat	BI01841
5 User Licence	BI01841A
Site Licence	BI01841C

MAKE

MRC 40, Compact 1000 Pro

MRC 40 A versatile, affordable 3 axis CNC Router with totally enclosed interlocking guard. Ideal for cutting a range of resistant materials such as hard and soft wood, plastic, modelling foam, acrylic and prototyping materials.	MRC004000
Compact 1000 Pro Ideal for cutting non-ferrous metals	MRC003000

Router 2600/Pro

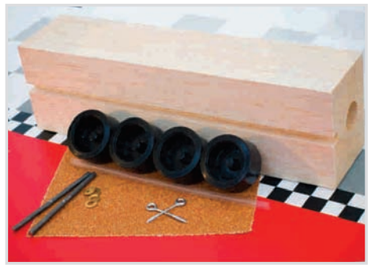
Router 2600 A 3 axis CNC Router with totally enclosed interlocking guard. Ideal for cutting a range of resistant materials such as hard and soft wood, plastic, modelling foam, acrylic and prototyping materials.	MRP002000
Router 2600 Pro Ideal for cutting non-ferrous metals	MRP003000

F1 in Schools Car Fixture

Comes as standard with two clamping systems to enable the manufacture of Bloodhound SSC* & Formula One Class** cars. The fixture clamps directly to the T-slotted table on the MRC 40 (T-slotted table not standard equipment with MRC 40), Compact 1000 Pro and Router 2600/Pro and is also suitable for use on the VMC 1300 (it is necessary to remove the tool changer to fit the fixture) *Bloodhound SSC Class formerly D-Type **Formula One Class formerly R-Type	NR1/0400UA

Bloodhound SSC Class Car Kit: PX & LX Wheels

Includes 2 x PX rear wheels and 2 x LX front wheels, 1 x sandpaper, 2 x screw eyes, 2 x axles, straw wheel spacers, 4 x washers, 1 x Bloodhound SSC Class balsa wood blank.	N13226DE1



Formula One Class Car Kit: Fusion

Includes set of 4 x black Fusion wheels, 1 x sandpaper, 2 x screw eyes, 2 x axles, straw wheel spacers, 4 x washers, 1 x Formula One Class balsa wood blank.	N13226F1R01

Bloodhound SSC Class Wheels

Set of PX and LX Wheels - 2 Front, 2 Rear - Black	N21899/OSET
PX Wheels - Rear - Black (pack of 100)	N30848
LX Wheels - Front - Black (pack of 100)	N30846

Formula One Class Wheels

Set of Fusion Wheels - Black (pack of 4)	N54531/OSET
Set of Fusion Aluminium Effect Hubs (pack of 4)	N54608/OSET
Fusion Wheels - Black (pack of 100)	N54531
Fusion Aluminium Effect Hubs (pack of 100)	N54608

Images shown are for illustration purposes only

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MAKE

Formula One Class Wheel Kit

includes:
4x wheels,
2x Tether Line Guides,
4x Axle Inserts/Grommets (6mm)
2x Axles

N14759

Bloodhound SSC Class Balsa Wood Blank (pack of 10)

Blank measures 304mm x 41mm x 70mm and contains a pre-drilled hole for the CO2 cartridge.

N53347

Formula One Class Balsa Wood Blank (pack of 10)

This official Formula One Class balsa wood blank measures 223mm x 65mm x 50mm and contains a pre-drilled hole for the CO2 cartridge.

N28886/10

Bloodhound SSC Class Kit Bag (for one car, excluding balsa blank)

Includes 2 x PX rear wheels and 2 x LX front wheels,
1 x sandpaper, 2 x screw eyes, 2 x axles, straw wheel spacers, 4 x washers.

N14634:04

Formula One Class Kit Bag (for one car, excluding balsa blank)

Includes set of 4 x black Fusion wheels, 1 x sandpaper, 2 x screw eyes, 2 x axles, straw wheel spacers, 4 x washers.

N14758:04

Paint Stand (for use with Bloodhound SSC & Formula One Class Cars)

This new, improved design holds your car during the painting process. The car is suspended by the cartridge hole and once on the stand, can be rotated to paint all sides.

N54528

Axles

Use the strength of steel to mount your model wheels

Long Axles (65mm) (pack of 100). **N53341**
Short Axles (43mm) (pack of 100). **N53728**

Screw Eyes

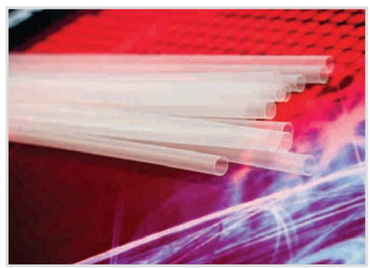
Use these screw eyes to keep your car on the track

1/4" Screw Eyes (6.34mm) for use with Bloodhound SSC Class Cars (pack of 100). **N15109**
1" Screw Eyes (25.4mm) for use with Formula One Class Cars (pack of 100). **N53693**

Washers

Reduce friction between the wheel and the car body.

Washers for use with Bloodhound SSC & Formula One Class Cars (4mm) (pack of 100). **N15194**



Straw Wheel Spacers

For use as axle bushings

Straw Wheel Spacers for use with Bloodhound SSC & Formula One Class Cars (pack of 500). **N33890**

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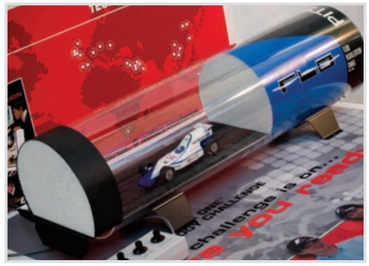
Decal Stickers

Decal Stickers (pack of 25 sheets)	NF1009



TEST

Smoke Tunnel Including Fog Maestro Smoke Generator

A harmless smoke-like vapour passes through the Smoke Tunnel demonstrating airflow around the object.	N13277

Fog Maestro Smoke Generator

Fog Maestro Smoke Generator inc. 1 litre of Fog Fluid (Generator can be used with the Smoke Tunnel or Scout Wind Tunnel).	N25100
1 Litre of Fog Fluid	N56805

Scout Wind Tunnel

A wind tunnel specifically designed to measure frontal drag on F1 cars. It is 1240mm in length and features a powerful motor that draws air through at approx 40mph. Includes 1 Bottle of Manometer Oil.	N24761
Replacement Bottle of Manometer Oil.	N59108

RACE

Elevated Racetrack

24 Metre - Long Track (includes 10 x 2.4m sections and 11legs only).	N22049

F1 Race System

Designed for use with the Elevated Racetrack, the F1 Race System includes: 1 x start gate, 1 x finish gate, 2 x launch triggers, 2 x launchers, 1 x power supply, 1 x control box and Race Time Management Software.	N32483

Track Banners

F1 in Schools Banners for use with Elevated Racetrack, featuring chequered flag borders and F1 logo (complete with velcro to attach to track)	NPB002

Test Cartridges

8 Gram Test Cartridges for Long Track (pack of 360). (for test only. NOT suitable for competition).	B103002A

Competition Cartridges

8 Gram Competition Cartridges for Long Track (pack of 120).	N53337
4 Gram Competition Cartridges for Short Track (pack of 120).	N53338

Deceleration Towels

Set of 2 deceleration towels. (Used to stop the cars at the end of the track.)	N18060

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WOOD
A range of hardwoods, suitable for machining on Denford routers.

JELUTONG WOOD BLOCK

A light coloured hardwood which allows high definition detailed machining of 3D models. Easy and quick to machine with minimal tool wear.

Billet size: 160mm x 100mm x 16mm (pack of 50).

BI03509F

AMERICAN MAPLE WOOD BLOCK

A creamy white hardwood with a close grain and fine, even texture.
Easy to work and finish, without the need for sanding.

Billet size: 160mm x 100mm x 20mm (pack of 50).

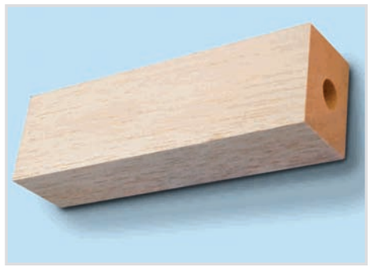
BI03509G

ROUND PINE BILLETS

Ideal for use with the Rotary Fixture attachments.

Billet size: 65mm Dia. x150mm Long (pack of 10).

BI03509J

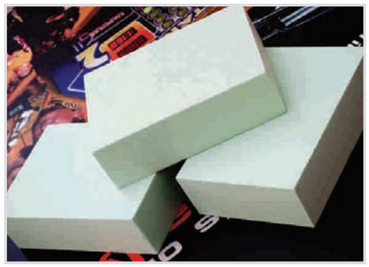


BALSA WOOD BILLET

Ideal for manufacturing sports cars for the 'GT in Schools - The Sports Car Design Challenge.'

Billet size: 80mm x 55mm x 223mm

N8055GT



FOAM
These rigid, closed cell foam blocks are ideal for the rapid machining of parts on the full range of Denford Milling Machines and Routers.

HIGH DENSITY FOAM

Ideal for most 3D prototyping applications. Offering plenty of surface detail, it is commonly used in moulds for vacuum forming and is also suitable for painting.
Billet size: 150mm x 110mm x 45mm (pack of 50).
Billet size: 70mm Dia. x 150mm long (pack of 15).
Ideal for use with the Denford 4th axis programmable rotary fixture.

BI03508A
BI03508E

MODEL FOAM

A low density and low cost foam product with easy machining properties which is particularly suitable for quick 3D realisation of design ideas.

Billet size: 160mm x 100mm x 50mm (pack of 50).

BI03508Z

MODELLING BOARD
A high density (0.47gms per cubic metre) board ideal for high definition 3D work.

Modelling Board

For prototyping high quality models

Billet Size: 1500mm x 500mm x 50mm (1 off).

BI03508K

VINYL

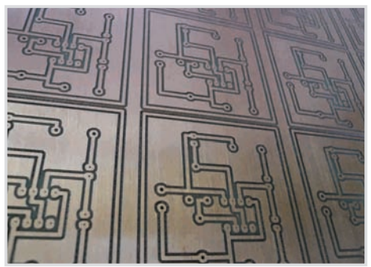
9 x 10 metre rolls of assorted coloured gloss finish 200mm width vinyl (for use with CraftROBO/Silhouette).

B103521

SIGNMAKING VINYL EDUCATION PACK includes:-

5M x 610mm Signmaking Vinyl in the following colours: white, black, buttercup, red, green, blue, ultramarine, gold and silver. 1M x 500mm Hotmark 60, soft heat sealable 50micron matt film (for use on fabrics) in the following colours: black, white, red and blue. High Tack Application Tape 100M x 300mm & 100M x 150mm. 5 x Plastic Applicator. 5 x Snap off Knife. 1 x Weeding Tweezer. 1 x Sheet Slitter.

BI01819X



PCB BOARD
Ideal for use in conjunction with VR CNC Milling 5, PCB manufacturing feature.

COPPER COATED CLAD PCB BOARD (SINGLE SIDED)

Size: 233.4mm x 160mm x 1.6mm (1off).

4X40079

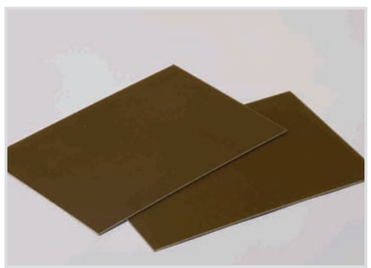


PHOTO RESIST COATED PCB BOARD (SINGLE SIDED)

High quality dip coated positive working photoresist.
This high resolution photoresist contains a dye which gives a good contrast against the copper allowing boards to be easily inspected at the developing stage. Panels are protected by a specially designed light-proof blue film which allows them to be guillotined without the risk of fracturing the photoresist.
Size: 233.4mm x 160mm x1.6mm (1 off).

4X40080

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ALUMINIUM

Free cutting aluminium bars and billets are ideal for producing quick prototypes of metallic components. Easily polished, they yield professional looking component parts.

ALUMINIUM BAR

Suitable for cutting on Denford Lathes. Bar Size: 20mm Dia. x 55mm. Non-Anodised (pack of 50).	BI03512A

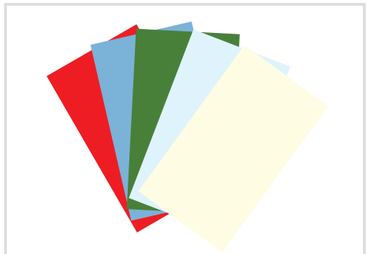
ALUMINIUM BILLET

Suitable for cutting on Denford Milling Machines. Billet Size: 100mm x 100mm x 12mm. Non-Anodised (pack of 50).	BI03511B
Red-Anodised (pack of 50).	BI03511C

EXTRUDED ACRYLIC SHEETS

Excellent thermoforming characteristics enabling the production of intricate, delicate shapes.

30 off 3mm **Red** 600mm x 300mm.	BI03523
30 off 3mm **Yellow** 600mm x 300mm.	BI03523A



CAST ACRYLIC SHEETS

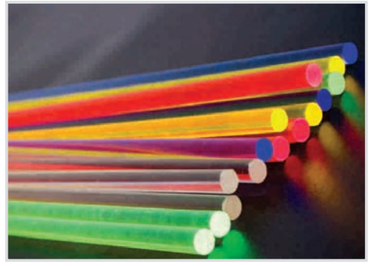
High quality, perfect surface finish and superb optical qualities.

30 off 3mm **Red** 600mm x 300m.	BI03522
30 off 3mm **Sky Blue** 600mm x 300mm.	BI03522A
30 off 3mm **Racing Green** 600mm x 300mm.	BI03522B
30 off 3mm **Transparent Smoked Blue** 600mm x 300mm.	BI03522C
30 off 3mm **Transparent Yellow** 600mm x 300mm.	BI03522D

HIGH IMPACT POLYSTYRENE

Rigid, easy cutting thermoplastic used for 2D projects. Can be quickly "layered" in different colours to produce low cost nameplates etc. Easily held on temporary machine tables using heavy duty double sided tape.

Billet Size: 160mm x 90mm x 2mm. White (pack of 50).	BI03501F
Multi-Coloured (pack of 50).	BI03501



ACRYLIC RODS

1 metre x 6mm dia. fluorescent round – **Red.**	BI03524
1 metre x 6mm dia. fluorescent round – **Yellow.**	BI03524A
1 metre x 6mm dia. fluorescent round – **Green.**	BI03524B
1 metre x 6mm dia. fluorescent round – **Blue.**	BI03524C
1 metre x 6mm dia. round – **Clear.**	BI03524D

CRAFT ROBO

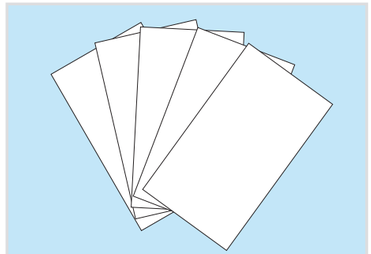
CONSUMABLES PACK

Consumables for projects including: - vinyl - coloured card - button magnets - mirrors - double sided tape - pack of coloured card	BI01819CRD

DOUBLE SIDED TAPE

HEAVY DUTY

Size: 25mm x 33M (pack of 10).	BI03502A



PLOTTER CARD

White Plotter Card (280gsm) Size: 450mm x 320mm (pack of 100).	BI01819NE

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MANUFACTURING PACKAGES

F1 MANUFACTURING PACKAGE

MPF101

F1 R-Type* Car Consumables Package x 25 Sets
F1 in Schools Car Manufacturing Fixture (D & R-Type*)
Dust Pro 50 Extraction Unit 110v
Virtual Wind Tunnel Software (single seat)
QuickCam Pro (site licence)
1/4" Dia Ball Nose L/S 2Fl Cutter (Solid Carbide)
Paint Stand x 2
Safety Glasses x 2

DRAGSTER MANUFACTURING PACKAGE

MPDRAG01

D-Type Car Consumables Package x 25 sets
F1 in Schools Car Manufacturing Fixture (D & R-Type*)
Dust Pro 50 Extraction Unit 110v
Virtual Wind Tunnel Software (single seat)
QuickCam Pro Site Licence
1/4" Dia Ball Nose L/S 2Fl Cutter (Solid Carbide)
Paint Stand x 2
Safety Glasses x 2

* R-Type - Now Formula One Class

CURRICULUM PACKAGES

10 HOUR MILLING CURRICULUM AND CONSUMABLES

PKM10

Milling Curriculum CD (10 Hour)
QuickCam 2D Design (Site Licence)
CNC Milling Basics Software
Consumables Package 10 Hour Milling (50 Student)
Engraving Cutter 0.4mm (1/64") 1/8" Shank 45 Degree
Toolholder 1/8" Dia Bore
Swarf Brush
Scissors, Safety Glasses x 2, 6" Steel Ruler

30 HOUR MILLING CURRICULUM AND CONSUMABLES

PKM30

Milling Curriculum CD (30 Hour)
CNC Milling Basics Software
Consumables Package 30 Hour Milling (50 Student)
Milling Vice
Swarf Brush
Scissors
Safety Glasses x 2
6" Steel Ruler
3" Engineers Square
Ball Pein Hammer 1/4oz

40 HOUR MILLING CURRICULUM AND CONSUMABLES

PKM40

Milling Curriculum CD (10 Hour)
Milling Curriculum CD (30 Hour)
QuickCam 2D Design (Site Licence)
CNC Milling Basics Software
Consumables Package 10 Hour Milling (50 Student)
Consumables Package 30 Hour Milling (50 Student)
Milling Vice
Swarf Brush, Scissors, Safety Glasses x 2, 6" Steel Ruler
3" Engineers Square, Ball Pein Hammer 1/4oz

10 HOUR ROUTER CURRICULUM AND CONSUMABLES

PKR10

Router Curriculum CD (10 Hour)
DXF Graphics CD (10 Hour Curriculum)
QuickCam 2D Design (Site Licence)
Consumables Package 10 Hour Router (50 Student)
5/32" Dia 1/4" Shank Router Plunge Bit
Safety Glasses x 2

10 HOUR TURNING CURRICULUM AND CONSUMABLES

PKT10

Turning Curriculum CD (10 Hour)
QuickTURN 2D Design (Site Licence)
Consumables Package 10 Hour Turning (50 Student)
Swarf Brush
6" Steel Ruler
Safety Glasses x 2

TOOLING PACKAGES

QUICK CHANGE ROUTER TOOLING

MRTP03

For MRC 40 and Router 2600:

10mm Router Collet for Kress Motor
1/4" ID Reducing Bush 10mm Shank x2
1/8" ID Reducing Bush 10mm Shank
1/64" Engraving Cutter 1/8" Shank 45 Degrees
Phoro engraving Cutter 1/4" Shank 45 Degrees
1/4" Dia Ball Nose L/S 2Fl Cutter (Solid Carbide)

QUICK CHANGE ROUTER TOOLING

MRTP04

For Compact 1000 PRO and Router 2600 PRO:

9 -10mm Dia. Collet to suit ER 20 Collet Chuck
1/4" ID Reducing Bush 10mm Shank x2
1/8" ID Reducing Bush 10mm Shank
1/64" Engraving Cutter 1/8" Shank 45 Degrees
Phoro engraving Cutter 1/4" Shank 45 Degrees
1/4" Dia Ball Nose L/S 2Fl Cutter (Solid Carbide)

RECOMMENDED ROUTER TOOLING PACKAGE

BI00846

For all Routers

1/8" Dia x 1/4" Shank 2 Flute Cutter
1/8" Dia x 1/4" Shank Ball Nose Cutter
1/4" Dia x 1/4" Shank 2 Flute Cutter
1/4" Dia x 1/4" Shank Ball Nose Cutter
60 Degree V Cutter x 1/4" Shank.

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TOOLING PACKAGES

MICROMILL QUICK CHANGE TOOLING PACKAGE

MMTP01

Engraving Cutter 0.4mm (1/64") 1/8" Shank 45 Degree
1/8" 3Fl Slot Drill 1/4" Shank
1/4" 3Fl Slot Drill 1/4" Shank
Toolholder 1/4" Dia Bore x 2
Toolholder 1/8" Dia Bore

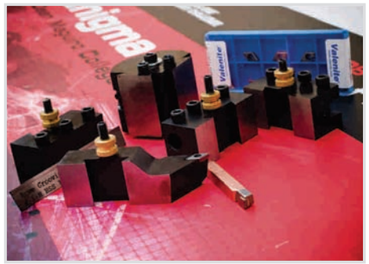
VMC 1300 RECOMMENDED TOOLING AND HOLDERS

VMC/0500RT

Recommended Set of Tools
20mm End Mill, 2mm HSS Slot Drill 6mm Shank
2mm Ball Nose Slot Drill, 4mm HSS Slot Drill 6mm Shank
6mm HSS Slot Drill 6mm Shank

VMC/0500RH

Recommended Set of Toolholders
Spanner for ER32 Collet Chuck
7 - 6mm Dia Collet to suit ER32 Collet Chuck x 2
Pull Stud for Toolholder x 5, BT30-ER32 Collet Chuck x 2
ER32 Collet Chuck Spanner, BT30-EM06-050 6mm Toolholder x 2
20mm Sidelock Holder



MICROTURN RECOMMENDED TOOLING PACKAGE

MT1/0100B

Quick Change Toolpost & Holders
1/4" Braised Carbide Tipped Cutting Tool LH
Quick Change Carbide Insert RH Turning Toolholder
Parting Off Tool Blade for Quick Change Toolholder
Pack of 10 Inserts – Quick Change Carbide Turning Tool

TURN 270 PRO COMPREHENSIVE TOOLING PACKAGE

TRNCMTP

MANUAL TOOLPOST

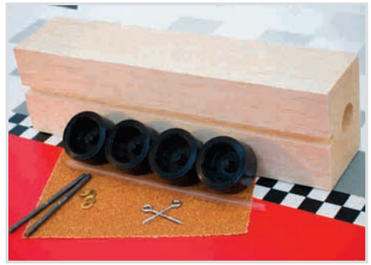
5mm Stub Drill, 10mm Stub Drill, TORX T8 Screwdriver
Parting Off Tool, External Threading Tool
Set of 10 Inserts for Boring Bar, Set of 10 Carbide Tips (Parting)
Set of 10 Carbide Tips (Threading), 8mm Shank Boring Bar
RH Turning Tool, LH Turning Tool
Set of 10 Carbide Tips (RH/LH Turning)
No. 2 Centre Drill Sleeve for QC Toolpost Boring Bar
No. 2 Centre Drill
Toolpost Boring Bar Holder x 4
Adjustable Toolholder for Quick Change Toolpost x 4

TURN 270 PRO COMPREHENSIVE TOOLING PACKAGE

TRNCTP

AUTOMATIC TOOLPOST

5mm Centre Drill, 5mm Stub Drill, 10mm Stub Drill
TORX T8 Screwdriver, Parting Off Tool, External Threading Tool
Set of 10 Inserts for Boring Bar, Set of 10 Carbide Tips (Parting)
Set of 10 Carbide Tips (Threading), 8mm Shank Boring Bar
RH Turning Tool
LH Turning Tool
Set of Carbide Tips (RH/LH Turning)
Turret Bush 5mm Bore x 2
Turret Bush 8mm Bore
Turret Bush 10mm Bore



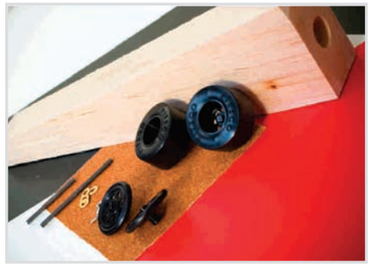
CONSUMABLE PACKAGES

F1 R-TYPE* CONSUMABLE PACKAGE (25 SETS)

CPRTYPE01

R-Type* Car Kit (Fusion Wheels) x 25 Sets

*R-Type - Now Formula One Class



DRAGSTER CONSUMABLE PACKAGE (25 SETS)

CPDRAG01

D-Type Kit Bag (PX & LX Wheels) x 25 Sets
D-Type Balsa Wood Blanks (Pack of 10) x 2.5

For Compact 1000 PRO and Router 2600 PRO:

10mm Dia. Collet to suit ER 20 Collet Chuck
1/4" ID Reducing Bush 10mm Shank x2
1/8" ID Reducing Bush 10mm Shank
1/64" Engraving Cutter 1/8" Shank 45 Degrees
Phoro engraving Cutter 1/4" Shank 45 Degrees
1/4" Dia Ball Nose L/S 2Fl Cutter (Solid Carbide)

50 STUDENT LITHOPHANE CONSUMABLE PACKAGE

CPLITHO

Cast Acrylic Sheet: 3mm Sky Blue 100x100mm x 50
Cast Acrylic Sheet: 3mm White 100x100mm x 50
50mm Wide Duct Tape (double sided) x 2
1/8" ID Reducing Bush 10mm Shank
Engraving Cutter 0.4mm (1/64") 1/8" Shank 45 Degree x 2
MDF Billet 5" x 8" x 5/8" (cut to size) x 2

ROUTER CURRICULUM CONSUMABLE PACKAGE

CPR01

10 Hour 50 Student

MDF Billet 5" x 8" x 5/8" x 150
MDF Billet 4" x 4" x 5/8" x 150
Green Golf Tee (Pack of 250)
Red Golf Tee (Pack of 250)

TURNING CURRICULUM CONSUMABLE PACKAGE

CPTURN01

10 Hour 50 Student

Aluminium Bar 20mm Dia x55mm Non-Anodised
(Pack of 50) x 3

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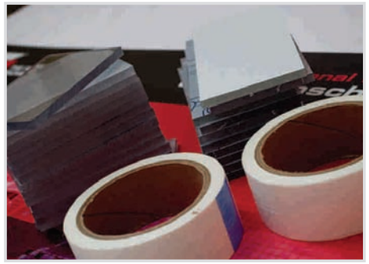
Consumables Packages



CONSUMABLE PACKAGES

MILLING CONSUMABLE PACKAGE

10 Hour 50 Student

Acrylic Billet 6" x 2.75" x 0.25" x 50
Acrylic Billet 4" x 2.75" x 0.25" x 150
Double Sided Tape x 2

CPMILL01

MILLING CONSUMABLE PACKAGE

30 Hour 50 Student

Protofoam Billet 3" x 2.75" x 0.75" x 150
Protofoam Billet 1" x 1" x 1" x 50
Acrylic Billet 4" x 2.75" x 0.25" x 250
Double Sided Tape x 3

CPMILL02

MILLING CONSUMABLE PACKAGE

40 Hour 50 Student

Acrylic Billet 6" x 2.75" x 0.25" x 50
Acrylic Billet 4" x 2.75" x 0.25" x 400
Protofoam Billet 3" x 2.75" x 0.75" x 150
Protofoam Billet 1" x 1" x 1" x 50
Double Sided Tape x 5

CPMILL03

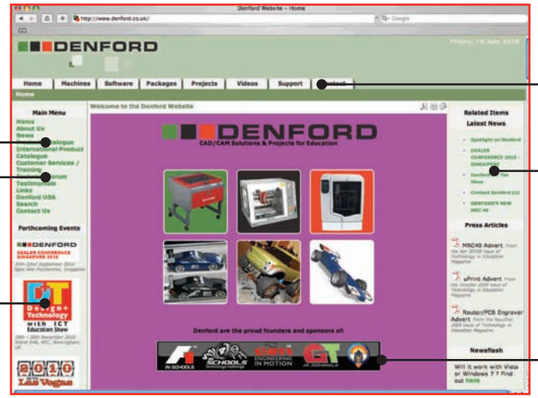
DENFORD

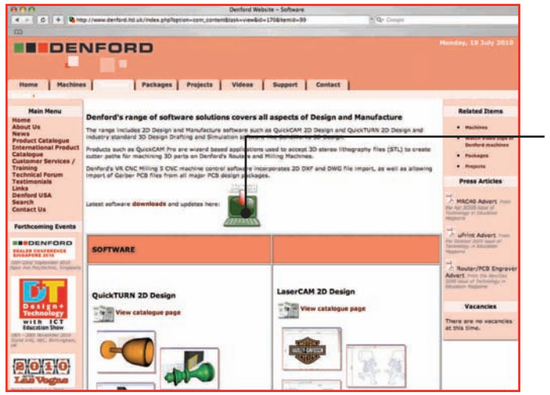
Denford's Website

EVERYTHING YOU NEED ALL IN ONE PLACE

WEBSITE

Denford's website includes everything you need to know about Denford's CAD/CAM and CNC solutions. The website features all of our latest hardware and software products, and now includes a range of video clips to show the latest technology in action. This includes a video commentary on our range of CNC Routers and accessories, and the Floating Head option for PCB manufacture.





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Latest Software Downloads

Denford are "Proud Founders and Sponsors" of a number of educational projects, including the "4x4 in Schools Technology Challenge," the "GT in Schools - The Sports Car Design Challenge" and - most importantly - the "F1 in Schools Technology Challenge". Links to these innovative projects are available on the Denford website.

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