

ROBOSYSTEM

**ROBO  
1500**  
TECHNICAL DRAFTING SYSTEM

**ARCHITECTURE**

**BUILDING**

**CIVIL ENG.**

**MECHANICAL**

**PANELWORK**

**PACKAGING**

ROBO 1500 is the fastest, easiest to use and most advanced Technical Drafting System yet devised for a micro-computer.

ROBO 1500 is specially designed to aid the production, storage and amendment of scale drawings and other 2-D graphic material with particular application to the industrial sectors listed here.

ROBO 1500 is compatible with other ROBOSYSTEM products as well as Library material produced on ROBO 500 and ROBO 1000 software.

ROBOCOM LTD  
Clifton House, Clifton Terrace  
London N4 3TB Tel: 01-263 8585



**the drawing processor**

# ROBO 1500

TECHNICAL DRAFTING SYSTEM

## Interactive drawing

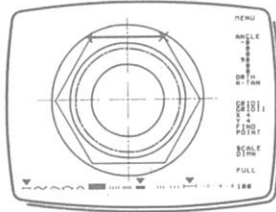
- You simply point in the required direction, enter your dimension and the line is drawn.
- Real-time image manipulation aids visualization and so speeds the drawing process.
- Full ZOOM and PAN facilities allow you to view your design in detail, move around the page, or ZOOM OUT for a more global view.

## All the functions you need

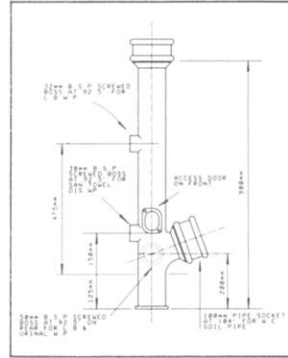
A complete range of functions are provided for the origination, manipulation, dimensioning and editing of your drawings.

These functions are displayed on screen as MENUS and PALETTES from which you select with the BITSTIK by simply pointing and pressing a button.

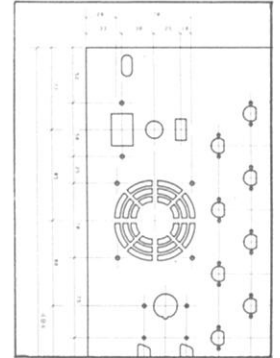
The complete list of ROBO 1500 functions is given overleaf, but a list alone cannot show how the unique ROBOSYSTEM command structure lets you draw faster and more effectively than with other CAD systems – no matter at what price.



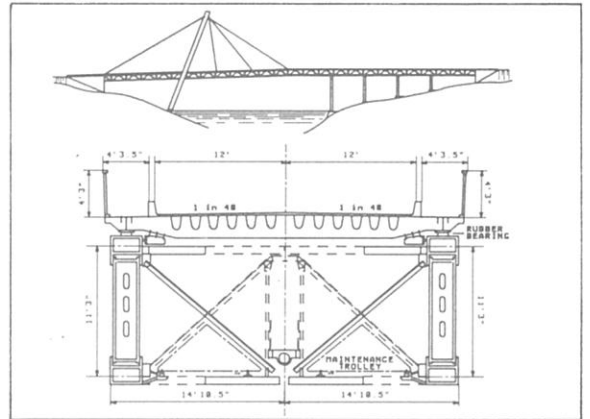
*save time,  
create new design  
opportunities –  
avoid repetitious  
drawing*



building



panelwork



civil engineering

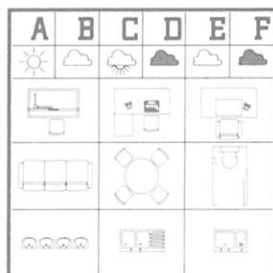
## features include:

### DRAWING ORIGATION

- Interactive screen driven menus.
- Rubber banded drawing cursors.
- Numeric entry of length, radius or diameter to 6 decimal places.
- Angles to degrees, minutes and seconds.
- On screen dynamic 'ruler'.
- Metric and English units – with automatic conversion.
- Auto-dimensioning and labelling.
- Definable grids to any spacing.
- Definable Text at any size and rotation.
- Automatic shape closure.
- Local and Global updating.

### LIBRARY

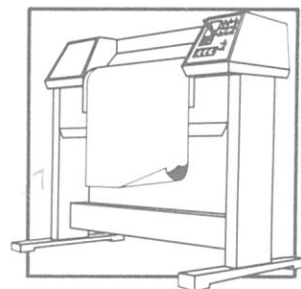
- Visual storage and selection.
- Drawing management system.
- Component library holds over 3 million items or drawings.
- Unlimited drawing archive.
- Pre-drawn ROBO LIBRARY of typefaces, symbols and specialist 'templates'.

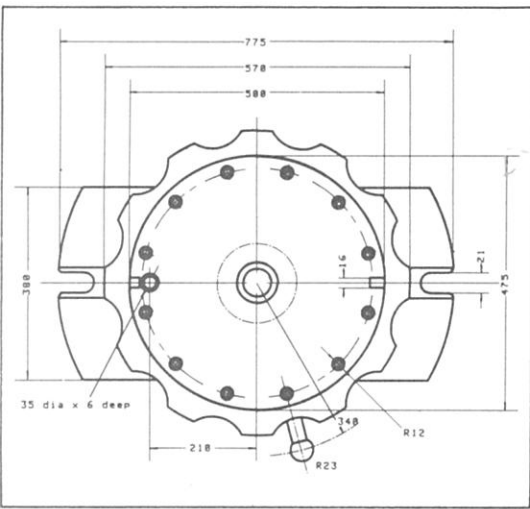


### OUTPUT

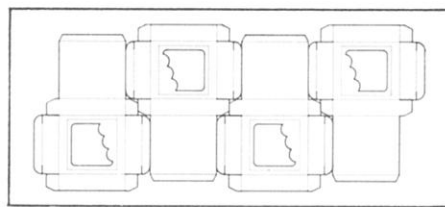
(with ROBOPLOT software & plotter)

- A4 to A0 plots at any scale.
- Plot on paper, film or board.
- Line weight/colour separation.
- Up to 7 line styles.
- Accurate registration for overlays and separations.

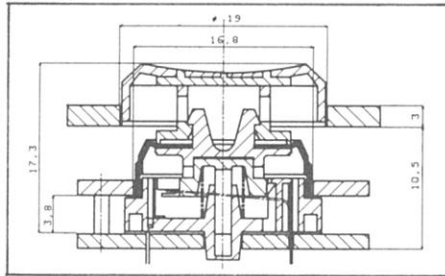




mechanical



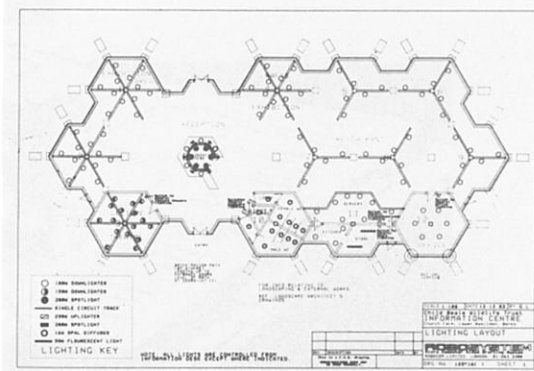
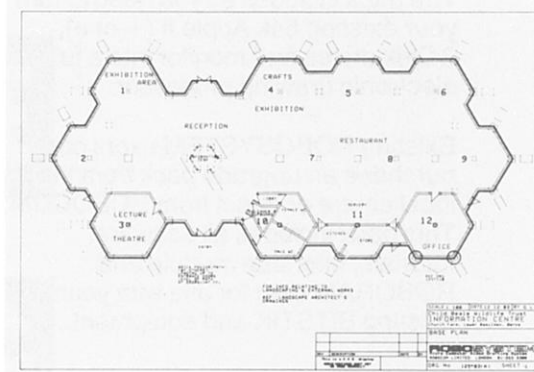
packaging



architecture

Specially developed in conjunction with industrial users, ROBO 1500 offers major improvements for all your drawing production.

Some applications are shown here but these are not exhaustive as the ROBO 1500 can also handle all the jobs done by ROBO 500 & 1000.



The ROBOSYSTEM allows you to store drawing elements in layers which can be combined, or separated, as required, at plot time.

All illustrations in this leaflet have been produced using ROBO 1500.

## THE EQUIPMENT

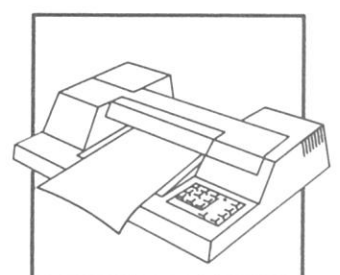
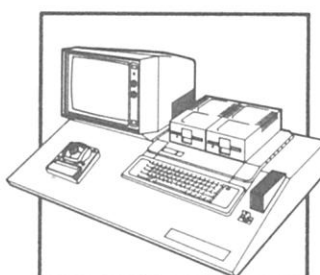
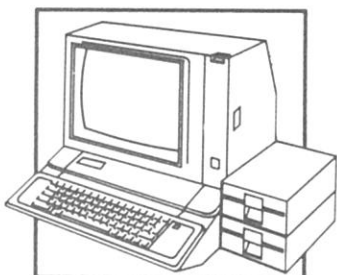
*low cost - high speed & reliability*

ROBO 1500 is designed specifically for the Apple II micro-computer.

This makes it possible to provide a cost effective, extremely reliable and versatile CAD workstation for use wherever drawings are needed.

By simply plugging in the BITSTIK and ROBORAM card (provided) and an ACCELERATOR card (optional), the Apple operates with the ROBO 1500 software to give you the fastest and most powerful drawing processor available for a micro-computer.

Adding a suitable plotter with ROBOPLOT software gives you a complete CAD workstation which can be expanded at any time to meet your future requirements.



## SUPPLY, SERVICE, SUPPORT

ROBO 1500 is available as an add-on pack from any of over 30 ROBO COMPUTER GRAPHICS CENTRES around the UK or through our worldwide INTERNATIONAL DISTRIBUTOR network.

The pack includes all you need to turn your existing 64k Apple II (+ or e), 2 Disk drives and monitor into a full electronic drawing processor.

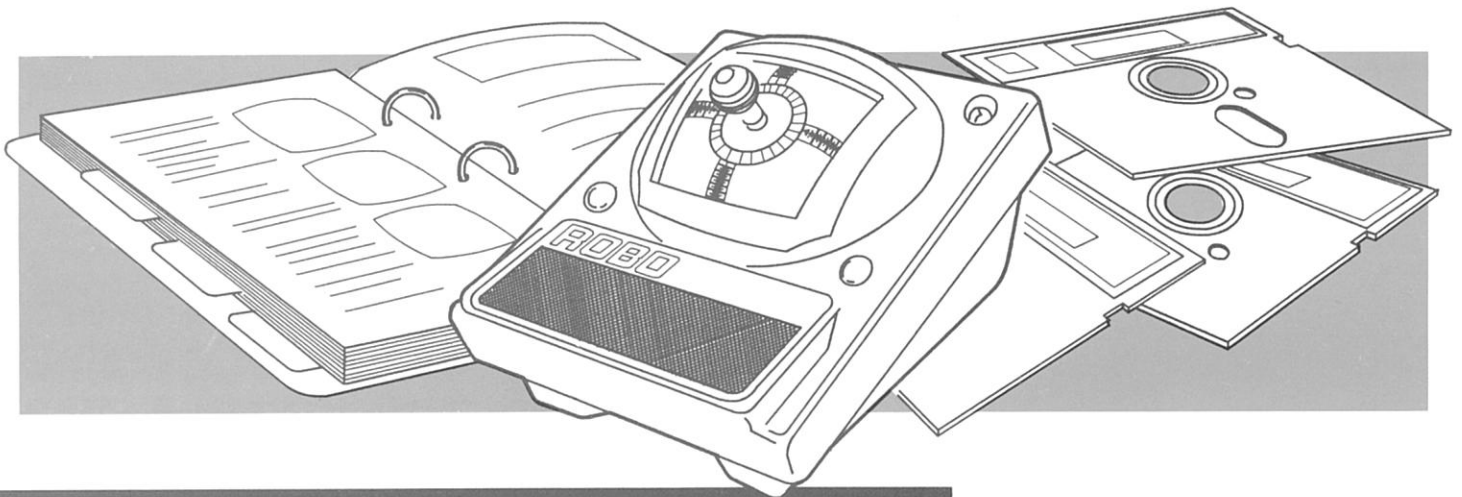
Existing ROBOSYSTEM users can purchase an upgrade pack from their local centre or direct from ROBOCOM. This pack includes all software, tutorials, interface module and ROBORAM card for use with your existing BITSTIK and equipment.

Your local centre can also supply or advise on plotters and other optional equipment such as colour monitors and printers.

In addition they can supply complete turnkey workstations with all equipment installed and tested for use in a professional drawing office environment and can arrange personal training if required.

The ROBOSYSTEM is produced in the UK and fully supported by our local centres and in-house software and technical teams. And we maintain a free software revision service to all registered customers – a service not many others have the confidence or the resources to provide.

*with over 3000 users to date  
the ROBOSYSTEM is the most  
popular low cost CAD system  
in Europe*



## SOFTWARE SPECIFICATIONS

### DRAWING FUNCTIONS

- LINE: Draws a straight line between two defined points.
- BLEND ARC: Draws an arc at a tangent to any line or arc.
- CENTRE ARC: Draws an arc at a defined centre, radius and angle.
- FILLET ARC: Draws a tangential arc at set radius and angle.
- CIRCLE: Draws a complete circle at set centre and diameter.
- NIB: Fills area between two nibs in solid or 5 hatches.
- STREAM: For freehand drawing with the BITSTIK or digitiser.
- COLOUR: 6 screen colours give 6 colour or pen thicknesses at plot time.
- LINE TYPE: Continuous and 3 dotted can be assigned to dash and chain at plot time. Can be used with Nib type for a wide range of tonal effects.
- TEXT: Keyboard entry of full ASCII character set. Text labels and blocks can be positioned at any angle and defined size. Text blocks can be repeated. Pre-saved text can be copied at any compression.
- PAINT: Gives alternative palette of 16 colours. Automatically fills enclosed area with colour for screen images and slides (not plottable).
- TRACE: Allows freehand drawing in stream.

### EDIT FUNCTIONS

- ERASE: Marks last entry and erases it. Can be stepped back and forward through drawing to erase any line, etc.
- UNDO: Immediately erases last entry or zoom command.
- FIND: Automatically locates any previously entered point.
- MOVE: Finds any unit copied from the library and allows you to reposition and change its characteristics (scale, rotation, compression, flip, colour or line type).
- DUPLICATE: Finds any copied unit and allows you to make as many new copies as you like directly onto the workpage.
- EXCHANGE: Substitutes a chosen Library unit for any unit already copied onto the Workpage.

### LIBRARY FUNCTIONS

- FILE: Files the workpage contents onto the Library index.
- TITLE: Adds a text/numeric label to the filed unit.
- LOAD: Loads any Library entry onto the workpage so that it appears as it was before filing.
- COPY: Copies any Library unit onto the drawing page. Before positioning you can change any of the copy parameters on the copy palette:
- SCALE: Sets the scale of the unit as a percentage of the original size.
- ROTATION: Sets rotation in the workpage plane to degrees, minutes, seconds.

COMPRESS: Sets the aspect ratio of the unit expressed as degrees of rotation perpendicular to the page about the X or Y axis.

COLOUR: Changes the colour of a copied Library unit.

LINE TYPE: Changes the Line type of a copied Library unit.

X FLIP: Generates a mirror image about the vertical.

Y FLIP: Generates a mirror image about the horizontal.

### VIEW FUNCTIONS

- ZOOM: Defines any area and enlarges it to full screen. Also gives REVERSE ZOOM, reducing current screen view into any defined area.
- PAN: Moves the screen view across the drawing.
- PAGE: Displays the complete drawing at base scale.

### PRECISION DRAWING AIDS

- ANGLE LOCK: Set DRAWING, COPY and TEXT cursors to either of two angles defined to degrees, minutes and seconds precision. Use like a variable set square.
- ORTH: Orthogonal lock for automatic 90 degrees at any point.
- N-TAN: Sets lock at TANGENT and NORMAL to any line or arc.
- GRID 1: Generates a default orthogonal snap grid about screen centre. This grid gives quantized ZOOM and COPY.
- GRID 2: Generates a user definable snap grid about the current cursor position. You can independently set X & Y spacing and rotation.

### SCALE DRAWING FUNCTIONS

- PAGE SCALE: Sets absolute size of workpage in Metric or English units, Km, M, mm, Ft, In. Page size from 100,000 Km down to 1 mm. You draw at scale 1:1, rescaling at plot time as required.
- GRID 1: Generates a square snap grid with automatic spacing (1, 2.5, 5). New spacing is automatically calculated after ZOOM in or out.
- GRID 2: Generates a snap grid at any set spacing and angle about the current cursor position.
- COPY SCALE: Library units automatically retain true scale when copied onto scale drawings (irrespective of units).
- DIMENSION: Enables you to interrogate the drawing and extract X length, Y length, Absolute length, Angle, Radius and Diameter from appropriate elements. Values are automatically loaded into TEXT cursor for positioning.
- DP: Allows number of decimal places to be set (up to 6).
- M/I: Converts between Metric and Imperial units.

### UTILITY FUNCTIONS

- TEXT SCALE: Sets the actual size of text labels and dimensions.
- EDIT: Edit or amend a unit from the Library or workpage.
- ZOOM STORE: Saves and recalls a zoomed view.
- IMAGES: Handles the current screen view as an image for storage, recall, use in other programs, slide-show, video and direct print-out.
- PRINT: Prints contents of screen to dot matrix printer.
- CATALOG: Catalogues the named images on the disk.
- DIGITISER: Switches between digitiser and BITSTIK control.
- WIPE: Wipes the screen and resets the system to draw.
- FULL: Clears the palette from the screen.

### SYSTEM CONTROL FUNCTIONS.

- RUN SYSTEM: Runs main drafting program.
- FORMAT COMPILER DISK: Formats Library disk for compiling drawings onto.
- FORMAT SOURCE DISK: Formats Library disk for filing source units onto.
- FORMAT ARCHIVE DISK: Formats Archive disk for filing finished drawings onto.
- CONFIGURE SYSTEM: Set up which cards are in which slots.
- SET UP CONTROLLER: Trims the control window for the computer.
- SET UP PRINTER: Configures the system for your printer interface card.
- SET UP DIGITISER: Configures system for Apple or Houston digitiser.
- SET UP DISPLAY: Configures system for RGB display card.
- EXIT TO BASIC: Exits from drafting system.

### PLOT FUNCTIONS (ROBOPLOT SOFTWARE)

- SET UP: Configures system for chosen plotter and cards.
- LOAD: Selects drawing to be plotted from Library disk.
- DISPLAY: Displays drawing on screen if required.
- ZOOM: Enlarges any area of the drawing to be plotted.
- CHANGE PEN: Assigns any drawing colour to any pen slot.
- CHANGE LI: Assigns drawn line type to any other line type.
- PEN SPEED: Changes pen speed if allowed by plotter.
- PEN PRESSURE: Changes pen pressure if allowed by plotter.
- PAPER SIZE: Changes paper size if allowed by plotter.
- PLOT: Plots the drawing at any size and position.
- PLOT LOCKED: As plot but with a grid for registration.
- PLOT TO SIZE: Plots the drawing at a set size in mm.
- PLOT TO SCALE: Plots the drawing at any required scale.