

Industrial Equipment Range



CONTENTS

01

Introduction

02– 05

Plastic Strip Heaters

06– 09

Vacuum Forming

10– 11

Diamond Polishing

12-15

3D Dye Sublimation Printing

16

Contact



CR Clarke is a global leader in the design and manufacture of thermoforming and plastic fabrication for the commercial and education markets.

At CR Clarke, we have over 40 years of experience in the design and manufacture of equipment for the forming and fabrication of thermoplastic materials. Our philosophy is based around having control of the entire machine production process, from raw materials to the finished product, giving us a unique skillset and understanding of the equipment that we manufacture and support.

We embrace new technology, with many of our products now including touchscreen controls, automated cycles and on-board diagnostics. Where we have applied technology to our range, we have kept in mind the core engineering design, ease of setup, use and reliability that our machines have always been renowned for.

Our products go mainly into the educational, commercial fabrication and retail sectors, and we have customers across the world. We pride ourselves on the personal approach that we take to what we do, and whenever you contact us you are speaking with people who have hands-on knowledge of our products and their capabilities.

For applications that fall outside our standard range, from painting a machine in a corporate colour to programming a particular automated cycle, a customisation service is also available.

This brochure provides an overview of our product range for commercial plastic product producers. Detailed datasheets are also available on request, providing further information and specifications on individual machines. Should you have any questions regarding CR Clarke products or possible applications, then please contact us and we will be happy to assist you.

PLASTIC STRIP HEATERS INTRODUCTION

The Process

Thermoplastic materials are insulating by nature. Therefore, when heat is applied to a local area, it stays in that area rather than spreading through the material. Once the softening temperature of the heated area is reached the material becomes pliable, allowing it to be folded with minimal force. When the material cools it returns to a rigid condition in its new shape.

Our Hot Wire Strip Heaters provide accurate and controllable heat sources for carrying out this process, and most are available with single or double-sided heating. Double sided heating increases the efficiency of a strip heater significantly, and can reduce heating times by up to 70%.

Our Experience

Our first product back in 1974 was a strip heater. We have constantly evolved our range since that time, and have supplied thousands of machines worldwide. Items that have been manufactured using our products include:

- School and University projects
- Point of Sale displays
- Signs
- Railway sleeper supports
- Medical components
- High temperature parts for the aerospace industry



PLASTIC STRIP HEATERS OUR RANGE

Single Bend Strip Heaters

We produce single bend machines which are compact and very easy to operate. Machines use multiple hot wires for optimum performance and consistency. Working lengths of up to 1500mm are available, giving fabricators the ability to produce a wide variety of components quickly and efficiently.



Mid-Range Strip Heaters

Our mid-range machines have a completely modular concept, enabling them to be tailored to the specific needs of each customer.

Available choices include:

- Working length – up to a maximum of 2000mm
- Maximum bend centres
- Number of heater beams required
- Operation from one or both sides of the machine
- Bench mounted or freestanding on stands with lockable castors
- Wide Band Heaters with infra-red, ceramic heaters for wide radius work
- Temperature Controlled Contact Heating for thin materials and low distortion bending

With any machine of this type, prompt delivery can be crucial, and we have developed our production systems so that we can respond to most requests very quickly from a standard core of components. This standardisation also helps to make machine maintenance as simple as possible.



PLASTIC STRIP HEATERS OUR RANGE

Elite range

The Elite range is our flagship strip heater series, capable of producing bends in materials up to 25mm in thickness and 3000mm in length.

Key features of the Elite are as follows:

- A range of working lengths from 1250mm to 3000mm.
- Double sided heating with up to eight heating wires per beam. This allows maximum flexibility in setting for different material types and thicknesses.
- Modular design, allowing each machine to be configured to the exact requirements of the customer.
- Maximum Bend Centres up to 2500mm
- Up to six heater beams
- Beam positioning system, allowing beams to be moved in a parallel motion for faster setup.
- Pneumatic material clamping with digital timer control.
- Optional Rear Table allowing the machine to be operated from both sides, increasing productivity

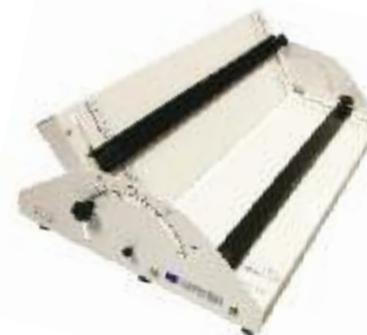
Elite Digital

For customers where setup time is of the essence, our latest Elite Digital machine is available with full touchscreen control of the heater beam positions, storage for up to 100 user-defined presets, linear rails for smooth heater beam movement, and a unique twin-encoder feedback system with homing sensors to ensure that heater beams are accurately positioned at all times.



Accessories

To complement our Strip Heaters we produce a range of folding jigs. These provide a simple and very effective means of holding materials while cooling, and are useful in both prototyping and production applications. We produce a standard range of jigs to suit most purposes, and can also design and manufacture fixtures for specific applications upon request.





Technology applied

Manufacturing quietness

When the Channel Tunnel between the UK and France was being constructed, we manufactured a customised version of our Elite strip heater for the production of cork-filled plastic channels, to provide sound insulation under the concrete sleepers that support the track.

VACUUM FORMING INTRODUCTION

The Process

A heat-proof mould of the required shape is loaded into the vacuum forming machine. A flat sheet of thermoplastic is loaded and clamped around its periphery. The material is heated until it softens. The mould is elevated into the material and the air between the mould and the sheet of material is evacuated, normally using a vacuum pump. Atmospheric pressure pushes the plastic material tightly around the mould, producing an accurate and detailed copy of it. Once cooled the plastic is unclamped and removed. It is immediately ready for use or post-processing.

Our Experience

We have manufactured vacuum forming machines since 1977. We have worked with companies around the world and our machines have been used to manufacture many items, including:

- School and University Projects
- Point of Sale Displays
- Packaging
- Transformer encapsulations
- Toy Helmets and Masks
- Remote Control Car Shells

For many years customers have screen printed images onto the plastic sheet prior to forming, allowing them to produce items such as relief maps and contoured illuminated displays. More recently, flexible UV inkjet systems have become available, and our machines are in daily operation at companies using this technology.



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Benchtop Machines

Our benchtop range is ideal for prototyping or small to medium volume production. All of our machines in this range feature sliding ceramic heater systems, high quality filtered vacuum pumps and silicone top seals.

A range of sizes is available, with a maximum sheet size of 508 x 458mm and a maximum mould height of 150mm.



VACUUM FORMING OUR RANGE

Freestanding Range

These machines are equipped with touchscreen control and multi-zone ceramic heater systems. Machines are available either with manual operation or semi-automatic cycle with light-curtain guarding and pneumatic operation of the platen and heater system.

Machines are available in a range of material sizes, including the popular 686 x 660mm and 1372 x 660mm. Our Technical staff would be happy to assist you with any enquiries for these larger machines, and to provide Datasheets for the most suitable unit for your application.





Technology applied

Manufacturing high quality models
The production of polycarbonate shells for remote control cars requires accurate temperature control and precise application of vacuum to ensure high quality results on a production basis. We have worked closely with companies in this market and our machines produce hundreds of shells each week.

DIAMOND POLISHING INTRODUCTION

The Process

A high-speed cutter hub is fitted with diamond tipped cutters. These cutters are a combination of polycrystalline diamonds to remove any evidence of saw marks, and single-crystal diamonds to generate a highly-polished surface.

The material to be polished is loaded onto the infeed track of the machine, and then passed across the cutter hub in a controlled manner by a belt feed system. Each machine has a maximum thickness that can be polished, thinner panels of material can also be stacked up to this thickness.

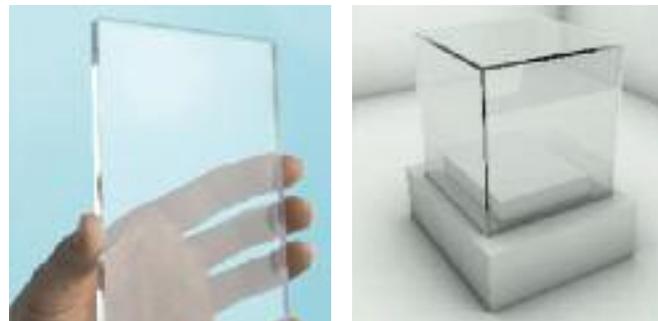
The polishing process removes less than 1mm of material from the edge of each panel, and converts a sawn edge to a highly polished finish. As this is a free cutting process no heat is generated, and therefore it is ideal for components that are subsequently glued as, unlike laser cutting or flame polishing, it doesn't introduce any stress into the material.

As with all cutting processes, cutting swarf is generated. Our Diamond Polishing machines can be connected to a suitable centralised extraction system to remove the swarf, or be supplied complete with an independent extraction unit.

The diamond tips in the cutter hubs require periodic sharpening, and we offer a Service Exchange Cutter Hub Scheme to assist customers with this. When a replacement is required, simply contact us or our local distributor and we will send one to you. Once you have received and fitted it, return the original to us for servicing. It will then become available for the next customer that requires one. The cost for the exchange (excepting any damaged tools) is fixed, so that your running costs can be easily calculated.

Our Experience

We developed our first Diamond Polishing machine in 1993, and have now built over 200 machines that are in constant use worldwide. We have supplied over 7000 service exchange cutters for our machines. We have developed our machines during the intervening period to incorporate the latest control systems for reliability and longevity.



Diamond Polishing Machines

We manufacture a range of Diamond Polishing machines with a polishing capacity up to 55mm. All machines have precision, high speed spindles and self-adjusting material transport belts.



Ovens and Dome Blowing machines

Dome Blowing and Dome Blowing, drape forming and press forming are all commonly used techniques when working with thermoplastics. We produce a range of temperature controlled, fan circulated ovens for the pre-heating of plastics prior to fabrication.

We also produce Dome Blowing units in a variety of sizes, with either manual or semi-automatic operation with level sensing technology that automatically inflates the dome to the correct size and maintains the level while the material cools.



3D DYE SUBLIMATION PRINTING INTRODUCTION

The Process

A component is lacquered with a polyester rich coating, to accept the sublimation dyes. A design is created using a computer, and printed onto a special transfer film using an inkjet printer loaded with sublimation inks. The part is loaded into the 3D Dye Sublimation machine, and the cycle is started. The cycle heats the film and then vacuum forms it around the component. A controlled heat cycle then transfers the dyes from the transfer film, embedding them into the lacquer. When the cycle has finished, the transfer film is removed, leaving a vibrant and hardwearing image on the surface of the component.

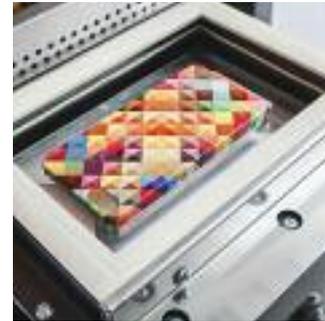
Our Experience

We began to develop 3D dye sublimation equipment in 2006, and have produced machines for blue-chip companies across the world, with installations across Europe, North America and Asia.

Examples of applications where our equipment has been used include:

- Skateboard components
- Mobile Phone Covers
- Laptop and Tablet Computer Covers
- Consumer White Goods
- Sporting and Recreational Equipment

Until 2014 we only manufactured branded products and therefore there was no direct advertising of this part of our range. However, with changes in the marketplace, we now offer our 3D dye sublimation systems directly.



3D Dye Sublimation Machines

We have a range of machine sizes, with film sizes from 210 x 147.5mm up to 1500 x 480mm. Temperature control of the dye sublimation process is critical, especially when dealing with plastic components, to ensure vibrant images with no part distortion. Our machines have simple but highly developed PLC control systems to manage the transfer cycle and ensure that the finished result is of the highest standard possible.

We also provide a range of high-quality consumables to complement our 3D Dye sublimation range, and can offer services for the design and manufacture of specific component printing supports if required.





Technology applied

Personalised printing

One of our customers for 3D dye sublimation is a leading consumer IT product producer. We installed a suite of machines across Asia and North America for them and tailored the machines to suit their production process, including Poka-Yoke jig mounting systems, barcode generation and printing to integrate with their workflow, emailing of production information from the machine to interact with their ERP system, and internet diagnostics so that the machines could be monitored from anywhere in the world.

Further information

For further information on all our product range
please contact our sales team:

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