



Crabtree
of Gateshead Ltd

Metal Decorating
& Coating Equipment

Contents

Fastready Gen3

page 4 - 9

**Coating &
Varnishing
Machines**

page 16 - 21

Marquess Plus[®]
page 10 - 15

Universal Feeder

page 22

**Double Box
Feeder**

page 23



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Mission Statement

In the pursuit of excellence, our mission is to produce and deliver premium metal decorating equipment and service of the highest standard, to ensure that we exceed our clients' expectations, confirming Crabtree as their first choice supplier.

Crabtree's philosophy of continuous improvement has led to what is undoubtedly the machine that is most suited to overcome the problems facing Canmakers today. Crabtree changes the wisdom of "Changeovers costing money" into "Changeovers making profit".

Fastready Gen3 fulfils all of the needs and desires of the serious Canmakers making it the natural choice for the future. The latest creation is an evolution from the original Fastready series. No other machine can change over quicker in any changeover circumstances. Every aspect honed to reduce both time and effort whilst maintaining accuracy giving assured quality. Being specifically designed for metal, it is robust and produced to a modular system that can be expanded to meet future requirements and withstand years of continuous production.

Performance Excellence

The Crabtree Fastready Gen3 excels in the areas of -

- ~ Excellent print quality.
- ~ Lowest make-ready times.
- ~ High output.
- ~ Repeatable.
- ~ Reliable.
- ~ Fastest return on investment.





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View showing extended plastic top plate on Fastready Gen3 Press Infeed

Infeed

The key to accurate registration is that each sheet is fed into the press and handled in exactly the same way every time. The sheet is transported by an efficient system of belts, sheet supports and pushers of an improved design. Each sheet passes through the press flat and tangential to the impression cylinder thereby reducing sheet distortion. Outer sheet supports have been extended to fully support the sheet into the gripper and the altered differential speed between impression cylinder and pushers reduces front edge damage at high speeds. Designed to meet the requirements for high accuracy printing and fast make-ready, the unique features of the improved infeed include -

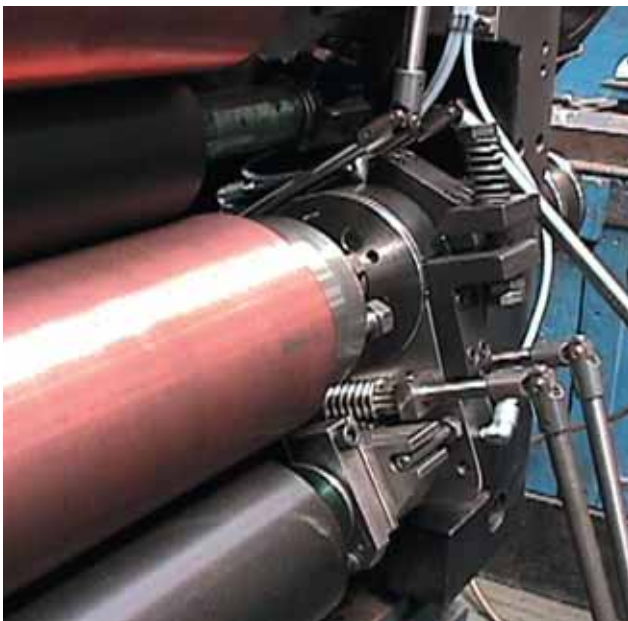
- Full CNC operation.
- Re-designed sheet support system to benefit thinner and double reduced materials.
- Optional vacuum system to assist in the registration of thin tinplate and aluminium.
- Interchangeable sidelays to the feed or driveside of the press.
- Dual purpose sidelays for improved registration on both body plate and scroll.
- Improved sheet handling and reduced distortion for larger and thinner sheets with magnetic side guides.
- Reduced front edge damage on multiple passes.
- Improved design paired pusher system ensures that each sheet is registered with consistent accuracy.

Inking System

The increase in machines supplied with u/v curing has led Crabtree to develop the Fastready Gen3 inking system.

Ghosting, water marking and ink density variations are eliminated with redesigned roller positions and roller configuration.

Roller oscillation is maximised to give smoother ink coverage from the front to back of the sheet.



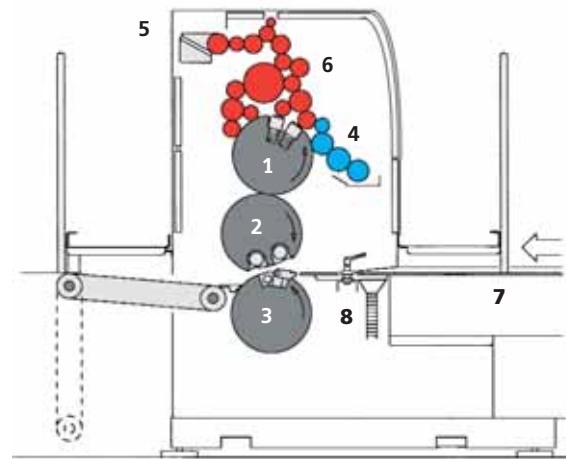
View on new reciprocating ink roller design showing external adjustments.

Extensive testing and development of the roller system has been carried out in house and at selected sites to assure most efficient system available today.

The inking rollers when washed automatically use an independent motor. Not only is the cycle programmable, other functions of the changeover can be done whilst the roller wash is taking place, effectively reducing the time taken to change the plates, wash the blankets and impression cylinders to zero.

Main ink drum and oscillating rollers designed to allow water cooling. This will keep the temperature of the rollers consistent whatever the environment helping to achieve output quality if this option is taken.

Delta® Dampening System



- | | |
|------------------------|---------------------------|
| 1. Printing plate | 5. Computerised ink duct |
| 2. Blanket cylinder | 6. Inking rollers |
| 3. Impression cylinder | 7. High speed infeed |
| 4. Delta dampener | 8. Vacuum infeed (Option) |

The dampening system is a four-roller continuous alcohol type with a fountain roller, metering roller, dampening forme roller, an oscillating ink receptive bridge roller and a drive arrangement facilitating the selection of the 'Delta®' feature.

Delta® is the process where the dampening forme roller rotates with a circumferential speed different to that of the plate cylinder.

The Delta® Dampening feature can be switched in or out during the print run with no disturbance to the printing process.

The benefits of Delta® Dampening are the removal of print defects called plate hickies caused by particle contamination of the plate, improved print fidelity, contrast and improved screen characteristics.

The oscillating bridge roller can be used to connect the dampener to the inking train during the print run to 'run integrated', and during wash up to clean the forme roller.

Control of the dampening film is achieved using three controls, fountain roller nip adjustment, fountain roller skew adjustment and metering roller speed adjustment.



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Impression Cylinder (Magnetic)

The Fastready Gen3 has a magnetic impression cylinder fitted as standard to improve its ability to handle lightweight tinplate.

The design of the front lays and grippers on the impression cylinder ensures high accuracy register without damaging the leading edge of the sheet, thus maintaining sheet flatness.

Power Operated Plate Change

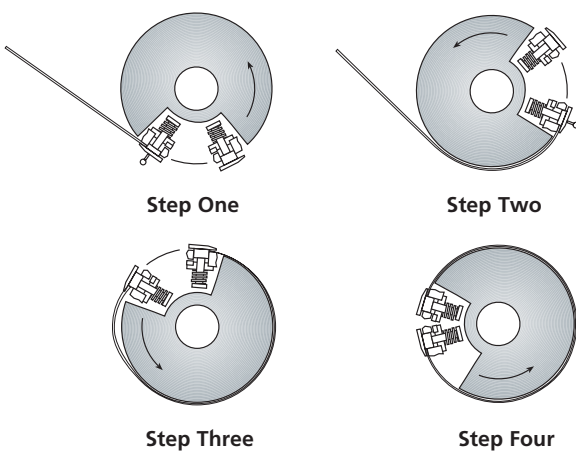
Plate changing has never been simpler, speed and automation are not compromised by allowing the operator to physically have to locate the printing plate on to the machine.

Only by taking this care at the early stage, time can be saved when the jobs have to have their colours adjusted to fit together.

Accuracy is key here, all decks can have their plates changed at the same time as each deck has separate drives.



Plate Change Sequence



Skew Control

Any fit or registration adjustments to the sheet are done electronically, the machine does not have to be stopped, and if necessary, they can be changed whilst the sheets are running through the machine.

Each of the two front lays can be adjusted either forward or backward on all decks.

Machine operators work smarter and not harder with Crabtree.

Motorised Stock Thickness

The stock thickness is now motorised and adjusted from the control console to ensure the correct printing pressure.

Small adjustments for printing pressure can be made without the need to stop the line in production.

Computer Operation of Ink duct

Ink density is set from the computer controlled unit supplied by Crabtree. Each key on the ink duct is set and adjusted from a control desk located close to the press. This system dramatically reduces make-ready time since settings for a particular production run can be stored and recalled when the job is next run.

Six Axis CNC

CNC control allows the automatic adjustment of sheet size, back to front and side fit from the control console.

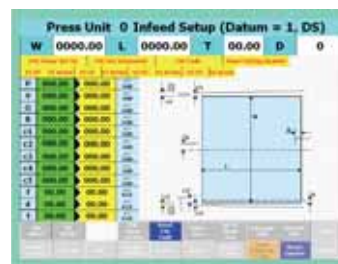
CNC operation of the infeed unit ensures rapid and accurate set up of the press.

Servo motors are fitted in place of the manual handwheels to control the position of -

- ~ Fixed and sprung sidelays.
- ~ Feed and driveside sideguides.
- ~ Sheet length.
- ~ Plate cylinder circumferential adjustment.
- ~ Fixed speed DC motor controls the front lays.

All changes for each press unit are made from one console where the operator is prompted for input settings on the screen.

The standard Fastready Gen3 is a full CNC press with six axis CNC and computerised ink ducts. The press can be purchased in a non CNC version and the computer ink duct then becomes an option.



View of sheet size screen



View of menu screen

CNC Features

- ~ **User friendly touchscreen:**
Control console features a user friendly Siemens HMI touch screen with Windows operating system for fast and easy operator control.
- ~ **Redundant axis feature:**
If a problem occurs with one or more of the six axes then this feature allows the operator to disable the faulty axis so they can be manually positioned. The operator will then still have total control of all other axes allowing production to continue, thus increasing machine availability.
- ~ **I/O status feature:**
If a problem occurs this feature provides an overview of the CNC system. The screen is a useful maintenance tool when fault finding.
- ~ **Jobs screen:**
When a job has been entered into the CNC system it can be saved in a specialised path. The next time the job is required all the relevant information is downloaded to the system automatically, thus reducing changover time.



Fastready Gen3 and Universal Feeder Specification

Sheet Sizes	Maximum Minimum Thickness	1200 x 1000mm 710 x 510mm 0.13 to 0.4mm
Printing Area	Maximum	1200 x 995mm
Printing Plate	Width x Length Thickness Underpacking Front of plate to start of print	1200 x 1130mm 0.30 or 0.40mm 0.20 or 0.10mm 78mm
Or to suit customer's requirements		
Printing Blanket	Width x Length Thickness Underpacking	1212 x 1250mm 1.95mm 0.15mm
Or to suit customer's requirements		
Gripper Margin	Minimum	5mm
Space Occupied	Length - Fastready Gen3/1 with feeder Fastready Gen3/2 with feeder Fastready Gen3/3 with feeder Fastready Gen3/4 with feeder Fastready Gen3/5 with feeder Fastready Gen3/6 with feeder Width Height	6900mm 10800mm 14750mm 18700mm 22650mm 26600mm 3710mm 2280mm
Feeder Pile Height (including pallet)	With conveyor rolls	650mm 575mm
Weight of Stock (maximum approx.)		5 Tonnes
Net Weight (approx.)	Fastready Gen3/1 with feeder Fastready Gen3/2 with feeder	13 Tonnes 23 Tonnes
Electric Power	Fastready Gen3/1 with feeder Fastready Gen3/2 with feeder Fastready Gen3/3 with feeder and coater Fastready Gen3/4 with feeder Fastready Gen3/5 with feeder and coater Fastready Gen3/6 with feeder and coater With coater add	45kw 63kw 81kw 99kw 117kw 135kw 15kw
Mechanical Speed	Maximum	8000 S.P.H.

Standard electrical equipment includes motors for operation on 400 volts AC \pm 10% at 50hz. Power details are given for guidance only and will vary with different voltages. For other voltages and specific cases consult Crabtree of Gateshead Ltd. As the company's policy is one of continuous product improvement, the right is reserved at all times to vary the technical specification without notice.

Crabtree Marquess metal decorating equipment is sold in over 90 countries worldwide and has a market share far greater than its competitors.

It is generally referred to as the workhorse of the industry due to its capacity to take on any job with outstanding reliability.

Print quality, versatility, reliability, longevity and ease of maintenance are the foundations of the Marquess Press.

The Marquess Plus⁺ continues with these well known features but now benefits from Crabtree's unrivalled research expertise to include PLC control of the press running functions, updated inker and dampener, independent electronic drives and low level walkways. This press being specifically designed for metal, is robust and efficient and produced to a modular system that can be expanded to meet your future requirements and withstand years of continuous production.

New Features

The Marquess metal decorating press has a track record of over 50 years of superior print quality, accuracy and reliability. This together with its robust build and ease of maintenance have made the Marquess both the printers and the maintenance engineers preferred choice.

In addition to the well known specification, Crabtree now introduce a host of new features that have transformed the Marquess into the Marquess Plus⁺.

- ~ PLC controlled functionality
- ~ Independent drives
- ~ Electronic synchronisation
- ~ Free standing operator console
- ~ Universal feeder with wide belts
- ~ Alcohol Delta[®] Dampening
- ~ Quick release pin register (optional)
- ~ Motorised stock thickness
- ~ Inking system reconfigured
- ~ Quick release pushers (optional)
- ~ New feeder drive
- ~ Semi-automatic inker wash-up (optional)
- ~ Low level platforms
- ~ New guards with walk through gates





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Feeder Unit

The Marquess Plus® metal decorating press is supplied with the Crabtree Universal Feeder Unit as standard equipment.

The feeder's revolutionary linear feed design and creep motor hoist allows for the smooth, high speed transfer of sheet metal from the feeder via wide belts to the in-feed unit.

Due to the success of this design, Crabtree feeders are often seen on a variety of other metal handling machinery such as sheet classifiers, coating and slitting machines.



In-feed Unit

As the sheets enter the in-feed unit they are accelerated by means of drop wheels, carried forward by conveyor belts and presented to the main pushers by pairs of dogs mounted on endless chains.

The latest feed mechanism ensures that the sheets are in constant motion and under positive control from the feeder's wide belts to the pushers, giving precise positioning of the sheets whilst they are registered from the side and front edges.

The sheets are supported by conveyor slats, which are hard chromed to minimise wear and scratching. In addition to the proximity type two sheet detector mounted on the feeder there is a no sheet detector and a rigid crash bar on the first unit in-feed.

These detection systems give maximum protection to the printing unit.

Guide Pusher and Sidelay Adjustments

The side guides can quickly be positioned to control different sizes by means of the conveniently located hand wheels.

Quick adjust pushers are an option. Micro adjust sidelays are fitted as standard.

Left: Quick release pusher (optional)

Marquess Cylinders

All the Marquess Plus⁺ cylinders are machined from the highest quality close grained cast iron.

The cylinders are driven by helical gears and are mounted on preloaded ball bearings which require no adjustment and minimum lubrication.

Blanket Cylinder

The blanket cylinder has been designed to take one blanket with underpacking. The worm and wheel tensioning arrangement allows the blanket to be fitted to the cylinder on both back and front edges in only a few minutes.

Quick release blankets can also be incorporated into the standard cylinder.

Plate Cylinder

The plate has a clamp bar which is positively located in position at the leading edge of the plate cylinder. The cylinder is then inched round until the trailing edge of the plate is clamped into position.

Scaled adjustments enable any slight position alterations.

As an option quick release pin register clamp bars can also be supplied.

Impression Cylinder

The impression cylinder is fitted with individual spring type grippers. As an option magnetic cylinders can also be provided, these are particularly useful for the control of thin or double reduced tin sheets.



Above: View showing motorised stock thickness assembly fitted to Marquess Press



Quick Release Pin Register (Optional)

Both the leading and trailing edge clamp bars have a single action lever mechanism, operated via the toggle bar provided, to clamp the printing plate in position. The clamps do not crimp the printing plate therefore reducing damage and increasing the life of the printing plate.

Tension is applied mainly via the trailing edge clamp bar, which has a rapid tensioning mechanism, using a standard wrench. The final tension is applied by the leading edge plate clamp bar which has a limited travel.

The above features result in a reduction in plate changing times. Plate change trials back at Crabtree of Gateshead have demonstrated that a plate change time of under four minutes is possible as opposed to eight minutes for the standard plate clamp bar system.



View showing clamp bars fitted to plate cylinder

Marquess Plus⁺ Motorised Stock Thickness

The motorised stock thickness adjustment on the Marquess Plus⁺ press allows quick and simple adjustments for different thicknesses of materials.

Small adjustments for printing pressure can be made without the need to stop the line in production.

Motorised linkages are fitted to both sides of the press, which at the touch of a button, can effectively increase or decrease the impression cylinder trip Warwick lengths, thereby raising or lowering the impression cylinder.

A control panel is fitted to the machine allowing the operator to adjust both the FS and DS side of the cylinder and also contains a digital read out to display the actual gap setting.

Benefits

- ~ No tools required.
- ~ Reduced make-ready.
- ~ Simple adjustment from one side of the press.



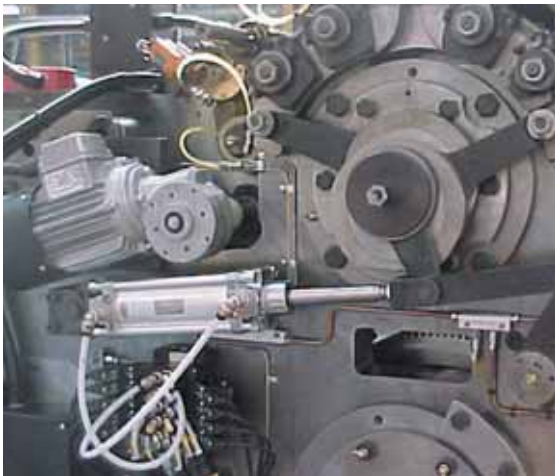
Marquess Plus[®] Pneumatic Operation of Cylinder Trip

Tripping of the inking and dampening systems, and of the blanket and impression cylinders, is achieved pneumatically and controlled through selector switches operated from a push button station.

The sequence of operation is as follows if auto mode is selected:

- ~ The dampener is tripped in automatically when the press reaches a pre-determined speed
- ~ The blanket cylinder is tripped in when the sheet feed is activated
- ~ The inker trips into print, followed by the impression cylinder when a sheet passes over the sheet sensor fitted to the infeed.

The push button station can also be used to trip the cylinders and rollers in and out of pressure easily when checking and resetting roller and cylinder stripes.



View showing the pneumatic air cylinder fitted to the inker trip

Marquess Plus[®] Delta[®] Dampener

The principal requirement of a dampener system is to lay down a constant fine film of water to prevent ink being deposited on the non-image areas of the printing plate.

The objective of the new design was to develop a high quality dampening system that could establish, quickly and consistently a correct and stable damp film on the printing plate, for both conventional and UV inks.

The Crabtree Marquess Plus[®] Delta[®] Dampener has two basic operating modes, Delta and Non-Delta.

Delta - the power transmission path is changed by a clutch, thus reducing the speed of the Dampener forme roller relative to the printing plate.

Non-Delta - the forme roller runs at plate speed.



View of Delta[®] Dampener fitted to a Marquess Press

Benefits

- ~ Less operator fatigue leads to improved press performance and utilisation
- ~ Reduced wastage due to incorrect trip procedures
- ~ Ease of setting cylinder and roller stripes due to pneumatic powered tripping.

System Requirement

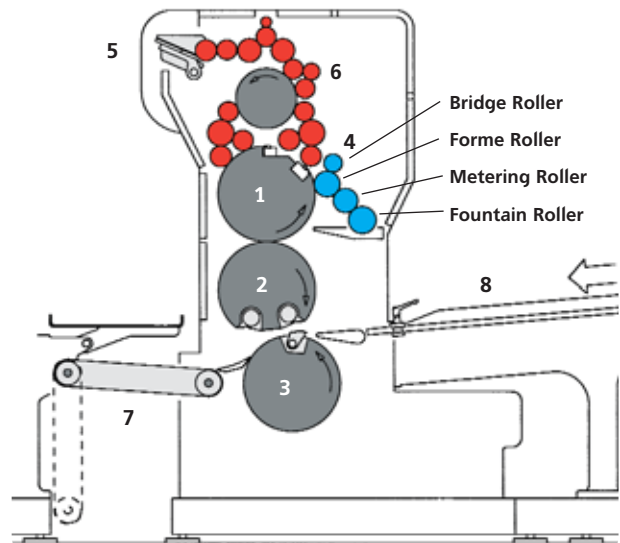
Pneumatic tripping requires compressed air at 80 lb sq in or 56 kg per cm² at all times.

Delta[®] Dampener Features

- ~ Hickeys are removed from the printing plate.
- ~ The printing plate is cleaned, this sharpens the dot formation and flattens the ink.
- ~ The damp feed is continuous so that an even front to back damp is achieved uniformly on every sheet.
- ~ Precisely controlled damp feed reduces emulsification and loss of colour brilliance; brighter colour is achieved with a thinner ink film, which means less ink consumption, better gloss and high print fidelity.
- ~ The need for Plus Molleton or paper roller sleeves is eliminated giving obvious savings in time and cost plus the elimination of a major source of hickeys.

Benefits

- ~ Eliminates down time due to hickeys.
- ~ Make-ready time savings - wash-up time is minimal saving make-ready time compared with the requirements of conventional systems.
- ~ Material savings - there is significant reduction in the number of waste sheets produced or required during press restarts giving savings in time and material.



- | | |
|---|-----------------------|
| 1. Printing plate cylinder | 5. Ink duct |
| 2. Blanket cylinder | 6. Ink rollers |
| 3. Impression cylinder | 7. Drop down conveyor |
| 4. Alcohol Delta [®] dampening unit (optional) | 8. Press infeed |

PLC Control/ Independent Drive

To keep in line with today's technology and the improvements made to the Marquess Plus[®] press, equipment controls have been upgraded to utilise the same PLC and drive controls as the Fastready press. A stand alone operator console allows the printer greater control in the running of the line.

Previous multi-colour Marquess machines used one main motor with line shaft and gearbox connections to drive between the units. On the Marquess Plus[®] this has been replaced with individual drive motors for each unit



synchronised using speed and positional sensors. This allows the operator to independently turnover each unit during make-ready without the need to disconnect the previously installed line shafts. This has also allowed the re-design of the platforms on the drive side of the machine to make it more user friendly and aesthetically pleasing.

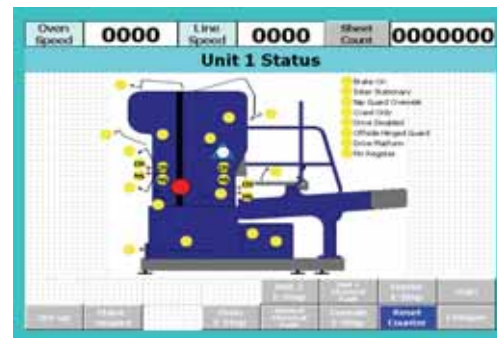




Electrical Circuit Detector

The Marquess Plus® press is designed to fully protect the operator against accidental damage whilst the machine is running. Many guards are electrically interlocked and there are safeguards to ensure the press is not damaged by bad or incorrectly fed sheets.

In the event of a stoppage, the HMI touchscreen on the control console will show which circuit is broken and permit immediate rectification.



Safety Features

The Crabtree Marquess Plus® press is fully guarded and interlocked.

Visible and audible alarms indicate when the machine is starting up, and emergency stop buttons are located at key points on the press and on the operator's console.

The press will stop within one revolution when the emergency stop button is activated.

Marquess Plus® Specification

Sheet Sizes	Maximum Minimum	1143 x 965mm 711 x 406mm	45" x 38" 28" x 16"
Thickness of Sheet	Maximum Minimum	0.40mm 0.14mm	0.016" 0.0056"
Printing Area	Maximum	1143 x 959mm	45 ³ / ₄ " x 37 ³ / ₄ "
Printing Plate	Width x Length Thickness	1143 x 1067mm 0.30, 0.40	45" x 42" 0.012" or 0.016"
Plate Underpacking front of plate to start of print	Thickness	0.20mm or 0.10 35mm	0.008" or 0.004" 1.38"
Printing Blanket	Width x Length Thickness	1156 x 1194mm 1.95mm	45 ¹ / ₂ " x 47" 0.077"
Blanket Underpacking	Thickness	0.15mm	0.006"
Gripper Margin	Minimum	5mm	0.197"
Space Occupied	Length MT1 MT2 MT3 Width Height	5867mm 8280mm 10693mm 3502mm 2197mm	19'3" 27'2" 35'1" 10'4" 7'2 ¹ / ₂ "
Feeder Pile Height	Including Stillage	991mm	39"
Weight of Stock	Maximum Approx.	5000kg	5 tons
Net Weight	Approx. MT1 MT2 MT3	11680kg 22350kg 31500kg	11 ¹ / ₂ tons 22 tons 31 tons
Electric Power	Total Required MT1 MT2 MT3	30kw 42kw 58kw	
Mechanical Speed	Maximum	6,000sph	

Standard electrical equipment includes motors for operation on 400 volts AC ± 10% at 50hz. Power details are given for guidance only and will vary with different voltages. For other voltages and specific cases consult Crabtree of Gateshead Ltd. As the company's policy is one of continuous product improvement, the right is reserved at all times to vary the technical specification without notice.

Coating and Varnishing Machines

Due to our expertise in supplying machines that surpass clients' production expectations, our products now dominate the majority of world markets. With our extensive range of optional features we can meet clients' individual needs whilst maintaining the high level of quality and reliability synonymous with the name of Crabtree of Gateshead.

Crabtree's Coater range is no exception to the rule. Flexibility has been combined with precision to offer a choice of front register or plain coating machines. The latest developments incorporate the option of computer numerically controlled infeeds, large sheet format, single scraper system and communication via modem to further enhance the excellent after sales service offered by our highly experienced team of engineers.

All of our Plus[®] Coaters are available as free standing or in-line machines.

Free standing models are supplied with a universal feeder and operated from a console on the side of the machine that can give control of the complete line if required.

The in-line models are supplied without a feeder and are configured to be electronically synchronised to our range of Marquess Plus[®] and Fastready Gen3 Presses.

Fastready Plus[®] Coating Machine

Free standing and in-line

Following extensive market research and the enormous success of our Fastready metal decorating press, the Fastready Plus[®] Coating Machine has been developed to meet increasing industry demands. It easily handles large thin sheet metal and allows a higher number of sheets per hour, whilst maintaining the accuracy of registration and precision of coating film weights required within an increasingly stringent manufacturing environment.

Main benefits of the Fastready Plus[®] Coating Machine:

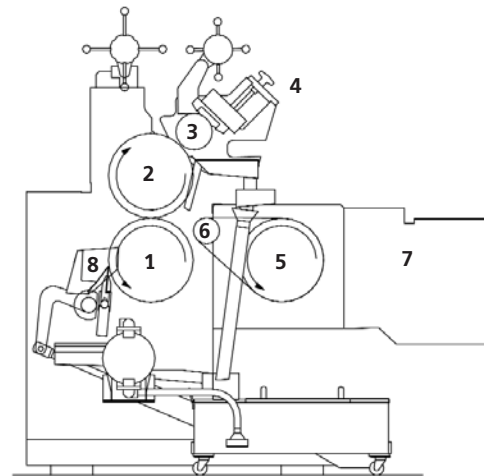
- ~ Precision control of film weights via optional Flexicoat (Anilox) head gives substantial cost savings.
- ~ Revolutionary scraper system.
- ~ Maximum sheet control via pneumatic pushers and pre-register drum.
- ~ High speed in compliance with latest developments in metal decorating presses - up to 7,500 sph.
- ~ Handling of large size thin sheets up to 1200mm x 1000mm.



Infeed

In response to market requirements for exceptional accuracy Crabtree have incorporated into the Fastready Plus® Coater, pneumatic pushers, magnetic infeed, pre-register drum and optional CNC - a key factor in accuracy of set-up and registration. The sheet transport consists of an efficient system of belts, leading dogs, trailing dogs and a single pair of pushers with remote pneumatic setting of pusher force. Designed to be compatible with our high-speed printing equipment, features of the infeed include:

- ~ Manual or optional CNC operation.
- ~ Magnetic top plates.
- ~ Pre-register drum with manual fine circumferential fit adjustment $\pm 7\text{mm}$.
- ~ Interchangeable sidelays to the feed or driveside of the coater.
- ~ Optional scroll edge sidelays and sheet sideguides.
- ~ Single paired pusher system ensures that each sheet is registered with consistent accuracy.



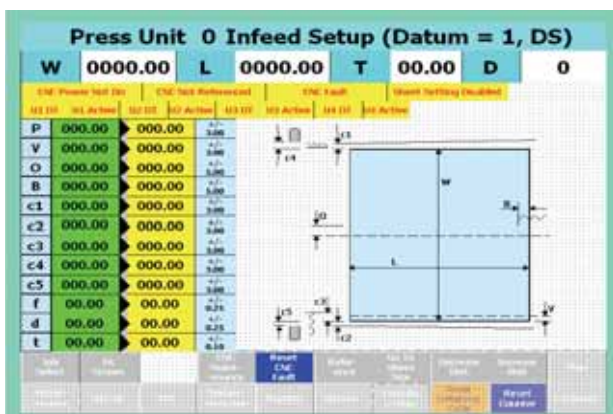
- | | |
|---------------------------------------|----------------------|
| 1. Compression roller | 5. Pre-register drum |
| 2. Application roller | 6. Magnetic pulleys |
| 3. Flexicoat (Anilox) roller (option) | 7. High speed infeed |
| 4. Anilox chamber (option) | 8. IsoBlade® |

CNC (Optional) Fastready Coater Only

CNC operation of the infeed unit ensures rapid and accurate set-up of the coater. Servo motors are fitted in place of the manual handwheels to control the position of:

- ~ Fixed and sprung sidelays.
- ~ Feed and driveside sideguides.
- ~ Sheet length.

CNC control allows the automatic adjustment of size, back to front and side fit from the computer console. All changes are made from one console where the operator is prompted for input settings using a user-friendly programming interface. A graphical representation of the infeed is displayed with input tolerances clearly shown. Sheet size settings can be stored on a menu in the computer and recalled when the job is next run, thereby reducing set-up time.



Graphical Control of Interface (CNC Version)

All line controls are accessed through the touchscreen graphic control interface. Line run conditions are achieved by selecting one of the touchscreen's function keys. Full safety stop circuitry can also be accessed to see which guard or stop button is stopping the line from being run. PLC diagnostics can also be accessed through one of the active screen displays.

Coating and Varnishing Machines

Flexicoat (Anilox) Coating Head (Optional) on all Coaters

The principal requirement of an Anilox system is to apply a precise coating film weight, accurately and consistently to the sheet. The system consists of a closed chamber fitted with doctor blades top and bottom and an Anilox roller engraved with the required cell pattern.

The advantages of the Flexicoat system are:

- Set-up times are reduced as no adjustment is necessary to obtain desired film weight, unlike conventional 2 and 3 roller systems.
- Metering is very precise, reducing the incidence of film weight variation to better than +/-5%.
- The sealed chamber reduces contamination. The chamber is sealed at its ends by quick release rubber face seals that seal on the face of the Anilox roller. Face sealing is important for the elimination of leakage.
- The coating is delivered across the Anilox roller ensuring that the cells are refilled with fresh coating with every revolution of the Anilox roller.
- The coating can be run at high viscosities due to the reduction on solvent loss.



View of Anilox roller quick release coupling

Quick fit for Reducing Wash-up Time (Optional) on all Coaters

Smaller production runs and an increasing need to minimise down time have brought about the development of the Quick Fit Kit for both the Fastready Plus[®] and 1200F Plus[®] Coating Machine. Consisting of a duplicate set of all lacquer trays and coating head side scrapers, it allows the operator to immediately replace the soiled components for separate cleaning, allowing the coater to be back in production quicker, thus maximising productivity.

Pneumatic Varnish Pump

All Plus[®] Coaters are fitted with a pneumatic pumping system for coatings and varnish. Flow rate can be controlled to suit the requirements of the material being applied and the system operates with ultra safety.

1200F Plus[®] Coating Machine

Due to its renowned robustness and accuracy the 1200F Plus[®] Coater remains a popular choice of precision coater with users worldwide. Depending on client requirements, we are able to supply either front register, spot coaters (F) or plain coaters (P) with belt infeed for overall coating or varnishing.

The front register spot coater incorporates spring loaded pushers, which feed each sheet into a gripper cylinder, where the front edge is registered with great accuracy. The transfer of the sheet to the application roller nip is then controlled by a combination of either running wheels or magnetic segments and magnetic rollers. Precise registration is assured, without the need for gripper margins on the sheet.

Main benefits of the 1200F Plus[®] Coater are:

- ~ Proven worldwide track record of performance and reliability.
- ~ Capacity to widely adjust film weight range.
- ~ Accuracy of film weights, leading to substantial cost savings.
- ~ Ease of integration into existing lines.
- ~ Economic running and maintenance.
- ~ Ease of operation.

Infeed 1200F Plus[®]

Consisting of slow-down belts and chain attached spring loaded pushers, the 1200F Plus Coater infeed is totally adjustable to transport different lengths of sheet.

The pusher dogs drive the sheet smoothly along the full length of the level infeed, whilst the infeed belts run at a slightly slower speed, ensuring perfect sheet control and eliminating sheet scratching.

Sheet control is further enhanced by means of the pre-register drum, fixed and compression sidelay, free rotating pusher heads and magnetic front register rolls for transfer of sheet to the composition roller.

Tandem Coater

For normal applications, a single coater can apply the precise film weight required, but Crabtree also have Tandem Coaters for applying internal coatings that require a high dry film weight for increased product security.



Tandem Coater

Coating and Varnishing Machines

Crabtree IsoBlade® Scraper System

The IsoBlade® scraping system is the result of intensive development work over the past 5 years. The system has been tested on Crabtree F1 and Fastready Coaters in the field and retro fitted to Crabtree and competitors machines. It is now fitted as standard to all new Crabtree Coating Machines.

On a typical coater the conventional scraper blade is mounted on the trough, and the whole assembly is forced against the compression roller by pneumatic or mechanical actuators acting at the ends of the trough. The contact force between

the blade and compression roller often varies across the width of the machine, resulting in uneven wear, shorter blade and compression roller life, and longer bed-in times.

On the IsoBlade® scraper system, now worldwide patented, the contact force between the compression roller and the blade is applied by matched pneumatic cylinders, but the force is controlled and distributed uniformly across the width of the machine - hence the name, IsoBlade®. The result is an improvement in all aspects of performance, with less downtime, especially when using aggressive coating materials. The compression roller and 'extended life' blade, have metallurgies developed to match each other.



Coating Head

Precise film weights are achieved by the unique 3 roller coating head. Fine adjustment leads to considerable savings on expensive lacquers and coatings. The variable position of the large diameter duct, metering and feed rollers provide for a very accurate adjustment of the coating head. The metered gap can be pre-set within 5 micron. The gap settings can be recorded to provide a database of film weights for repeat jobs.



Safety Features

Our Coating and Varnishing Machines meet all current published European safety standards. The coater is fully guarded and interlocked.

Visible and audible alarms indicate when the machine is starting up, and emergency stop buttons are located at key points on the coater and on the operator's console.

The coater will stop within one revolution when the emergency stop button is activated.

Each coater is manufactured to CE standards, which indicates that it conforms to the European Directives on machine standards, noise suppression and safety for the EU market.



1200F and Fastready Plus® Coating Machines

Maximum Sheet Size	1143 x 965mm (larger sheet size on request)		1200 x 1000mm + aspect ratio
Minimum Sheet Size	660 x 508mm		720 x 510mm 1:15
Sheet Thickness			
Maximum	0.6mm		0.5mm
Minimum	0.13mm		0.13mm
Application Roller Diameter			
Spot coating	329mm		329mm
Maximum plain coating	339mm		339mm
Minimum plain coating	319mm		319mm
Application Roller Length	1168mm		1225mm
Compression Roller Length	1168mm		1225mm
Varnish Tank Capacity	80 Ltrs.		80 Ltrs.
Space Occupied (1 x w)			
F/FS - Free standing	6160 x 2730mm		6730 x 3690mm
F/IL - In-line	4100 x 2730mm		4731 x 3690mm
P/FS - Plain coater, free standing	4970 x 2730mm		
P/IL - Plain coater, in-line	2980 x 2730mm		
Feeder Pile Height (with stillage, no conveyor rolls)	675mm		675mm
Maximum Mechanical Speed	7200sph		7200sph
Maximum Feeder Capacity	5000kg		5000kg
Nett weight			
F/FS - Free standing	9150kg		10709kg
F/IL - In-line	7100kg		8585kg
P/FS - Plain coater, free standing	7130kg		---
P/IL - Plain coater, in-line	5080kg		---
Electrical Power FS Models			
Main drive motor	13kw		13kw
Lacquer pump motor	0.55kw		0.55kw
Feeder pump motor	7.5kw		7.5kw
Side blower pump motor	4kw		4kw
Feeder pile hoist motor	4kw		4kw
Wash-up motor	---		---
Control	1.5kw		1.5kw
Lubrication	0.55kw		0.55kw
Electrical Power IL Models	<u>Electronic Sync</u>	<u>Mechanical Sync</u>	Electronic Sync
Main drive motor	13kw	---	13kw
Lacquer pump motor	0.55kw	0.55kw	0.55kw
Feeder pump motor	---	---	---
Side blower motor	---	---	---
Feeder pile hoist motor	---	---	---
Wash-up motor	---	1.5kw	---
Control	1.0kw	1.0kw	1.0kw
Lubrication	0.55kw	0.55kw	0.55kw
Compressed Air	6 bar (80 psi)	6 bar (80 psi)	

Standard electrical equipment includes motors for operation on 400 volts AC \pm 10% at 50hz. Power details are given for guidance only and will vary with different voltages. For other voltages and specific cases consult Crabtree of Gateshead Ltd. As the company's policy is one of continuous product improvement, the right is reserved at all times to vary the technical specification without notice.

Universal Feeder

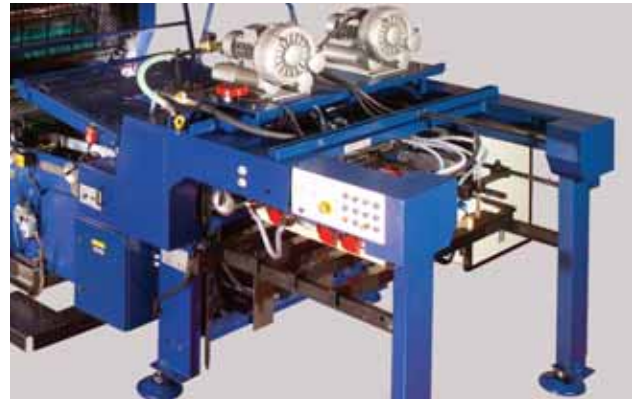
Single Box Feeder

Crabtree manufacture a range of sheet metal feeders to suit both our own printing and coating machines but also other suppliers' machines such as slitters and classifiers etc.

The Universal Feeder is the latest in this range and now includes the following developments.

- ~ A new sucker cylinder design resulting in increased response time, enabling reliable sheet feeding up to 8000 sph.
- ~ A new vacuum valve assembly and revised pipework resulting in consistent sheet release and reduced sucker wear.
- ~ Wide belts have been fitted to the feeder infeed table to improve sheet handling.
- ~ The drop wheels can be latched down onto the wide belts resulting in controlled sheet delivery.
- ~ A revised creep speed ensures good pile height control for high speed running.
- ~ A new linear slide for the front sucker carriage assembly. This recirculating ball assembly results in a longer service life.

Extensive testing and development has been carried out in house, and at a selected site, the results of which have now been incorporated into the build as standard for all new Crabtree Universal Feeders.



The Single Box Feeder



General view of front sucker cylinder carriage assembly



General view showing conjugate cam assembly for feed carriage



View showing wide belts on feeder



New feeder pumps

Motion Control of Front Suckers

To improve the motion and control of the front sucker carriage, a conjugate cam arrangement is fitted.

The conjugate cam setup results in the cam followers always being in a positive drive mode therefore eliminating bounce and reducing cyclic drive loads.

Wide Belt Feed Table

Wide belts are now standard on the feeder feed table. These optimise sheet support and ensure no adjustment is necessary for sheet size change.

A drop wheel latch assembly allows the drop wheels to be permanently running on the wide belts on the feed table. This results in controlled sheet delivery to the press infeed.

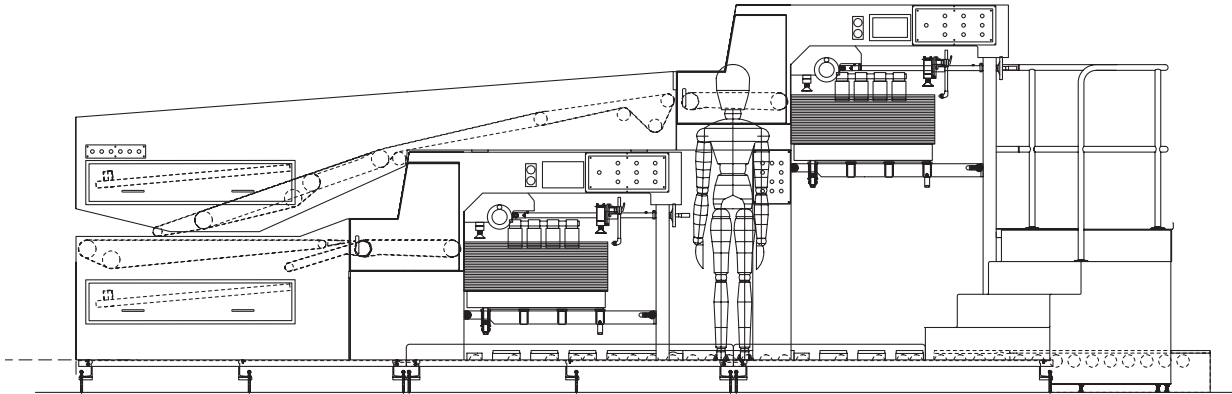
Feeder Pumps

The feeder pumps have a non-contacting internal blade design reducing the amount of servicing required and are also more efficient. As a result of this increased efficiency, the motor size is considerably smaller than the other pumps reducing the power required. These features combined reduce servicing and energy costs.

Double Box Feeder



Crabtree
of Gateshead Ltd



The Universal Continuous Double Box Feeder is the latest in our line of feeders and is designed for high speed continuous feeding from two feeder boxes. This feeder incorporates all of the new features of the single box feeders and is designed to fit onto any of the Crabtree range of printers and coaters and is electronically driven and synchronised.

The main advantages of this feeder are:

- ☞ **To reduce set up time.**
 - One box can have good sheets, the other box waste or trial sheets.
- ☞ **Non stop feeding.**
 - Elimination of gaps in production whilst stillage or piles are changed.
- ☞ **Quality Improvements.**
- ☞ **Energy savings.**

This feeder is effectively two Crabtree sheet feeders, the first (the Upper feeder) is mounted in front and above the second (the Lower feeder). A belt conveyor system connects the two feeders to a common discharge point. The upper and lower halves of the conveyor unit both have sheet reject units, for the rejection of the last sheet, or multiple sheets, or (at the operator's discretion) a damaged sheet in the pile.

The stillages are loaded into the feeders on floor mounted motorised roller conveyors.

The upper feeder has an extended hoist platform travel, and a pile plate (or Gate) that can be raised or lowered - the gate movements are automatic, sequenced with the hoist platform. With the gate in the upper position (the standard sheet feeding position), stillages can be conveyed through to the lower feeder. With the gate in the lowered position, the stillages are loaded on to the upper feeder platform and raised to either the 'Parked' or 'Working' positions.

Changeover between feeders is automatic, and can be initiated by an operator, or after the last sheet is fed.

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Crabtree of Gateshead have achieved ISO 9001 - 2000 registration, a recognition of Crabtree's commitment to maintaining the highest quality throughout its entire manufacturing operation. Continuous improvement of our quality systems will ensure that the highest standards of customer service and satisfaction are achieved.

