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HSK800HE HARD METHOD HOLOGRAM EMBOSSER SEMI ROTARY, TWIN HIT

The Process of Hard Embossing:

The substrate is embossed by passing it between a rotating & driven oil heated embossing die roller, to which the nickel embossing shim is clamped, and rotating heated compliant or hard steel impression rollers which are either side of this die roller. This produces an embossed area (two panels) 610 mm long and as wide as the shim affixed to the roller. The shim is wrapped and clamped around more than half of the circumference of the embossing roller so that each revolution of the embossing roller produces an embossed panel and a similar sized blank panel.

The hardened adjustable cams on each end of the die roller allow for the lift on/lift off of each impression roller for the embossing of the hologram panel. To emboss the blank panel (I.E. 305 mm) between impressions realised on the first impression roller, the substrate is passed through a variable length-timing path and then between the embossing roller and a second compliant or hard steel impression roller. The variable length-timing path is to allow accurate positioning of the second embossed panel to the first embossed panel.

Design Principles of the Hard Embosser

The frame construction is a precision-engineered high rigidity frame with cross member stays with a separate control panel unit for system operation. All rollers will be mounted within the frame sides and allow for quick disconnect for easy removal of embossing die roller and impression rollers.

The separate control panel system will be remotely sited from the machine with steel trunking and sited on a plinth covering all service pipes and cable to the machine. This control panel will include all operation controls and have a LCD readout unit. This LCD will contain an interface, which will allow the operator to input the shim roll diameter for web timing purposes.

The Method of the Hard Embosser

The substrate is sited on a pneumatic chuck system unwind which passes over an edge guide roller system for accurate edge control of the substrate web and then a tension control unwind roller system and then through the embossing rollers. Embossing pressure is applied through two hydraulic cylinders applying pressure to the impression rollers independently. The embossing roller is fitted with adjustable cams, which allow the length of the embossed area to be varied by up to 2 mm for overlap to suit 'wallpaper' pattern embossing repeats. The embossing roller and steel impression rollers are heated with hot oil. The unit is designed to give a heat up time of approximately 30 minutes and an even working temperature across the embossing die roll. Cooling time is approximately 90 minutes.

The substrate web is passed between the two impression points; the web passes over a variable length-timing roller. The purpose of the timing loop is to allow the operator to position the second embossed panel accurately. If the length of the path between the two impression points is an exact multiple of the embossed length, then the edges of the two embossed panels will butt up. If the path is either longer or shorter, then there will either be a gap or an overlap between the embossed panels. The path length is operator adjustable whilst the machine is running via an electric control switch which will move the timing roller up or down to adjust web passing through it.

The operator, using a combination of embossing length control and variable path length can then control the final embossed panel by 'locking' the adjustable path roller for accurate embossing between panel to panel.

There is an optional automatic web registration adjustment control system suitable for a constant repeat accuracy between embossed panels. This is designed for image embossing to be suitable for labels and hot stamped holograms, which demand a high degree of accuracy for the finishing process. This is available at time of purchase; (see the specifications under options below).

After embossing, the substrate passes over a second tension control roller and a web path roll and is rewound onto a rewind shaft with pneumatic chuck and lay on roller.

The machine is fully guarded with appropriate interlocking and is CE marked and Manufactured to strict ISO standards.

Available Extras:

1: Compliant Coated Impression Rollers

These can be additional or as an alternative to the steel impression rollers supplied with the machine.

It is strongly advised that at least one pair (two) compliant faced impression rollers are purchased with the machine for the embossing of top coated embossing substrates. Using compliant faced rollers removes the need for hardened and / or profiled embossing shims and the subsequent complex electroforming skills and equipment which are required at wider widths and allows lesser temperatures and pressure to be applied to the substrate extending both shim life and enabling far higher embossing runs before shims changes are required. It simply requires a shim that is non-hardened with a flat profile without the need for a special centre profile for the embossing medium. This not only saves time in the electroforming process and gives a longer embossing life of the shim but with the important addition of a more accurate replication of the original shim quality throughout the length of the embossing process.

2: Automatic Registration Control System

This system will automatically control re- registration of the web passing through the web-timing roller for high accuracy of panel to panel (and image to image) repeat. This is very important for the high speed finishing for die cut labels and/or hot stamping of registered hologram images that are used in the finishing process of holograms within the security and high volume label industry today.

The substrate is monitored by an optical reader unit using a registration mark on each embossed panel (on the embossed substrate) as the guide for pitch length and re-registration.

3: Steel Impression Rollers

Hard chromed steel impression rollers complete (2 off) with all fittings, bearings etc. required for fast changeover of rolls.

4: Hardened & Polished Die roller

To suit a 305mm panel length (610mm emboss length) with bearings fitted. Special sizes for custom pitch length requirements can be supplied; please enquire.

5: Shim Clamping and Fitting/Removal Table

A wheeled table unit, which will allow for ease of attaching the shim to the die roller for clamping / removal. This system will draw the shim from the table surface onto the die roller in the jog mode for accurate and safe fixing of the shim. In addition it can be used for shim removal, which is very important for safety if the shim is removed or fixed whilst, the die roller is under heat.

Warranty

Full one year warranty on electrical items and 24 months on framework subject to our normal terms and conditions of sale. (Copy available on request.)

Terms:- To be agreed at time of ordering.

Delivery:- 22 weeks or better