

HOW TO CHOOSE A HOT MELT COATING AND LAMINATING LINE

Conventional methods of coating and laminating with straight and slightly modified waxes has been covered in an earlier portion of this booklet. Without modification, these units cannot take advantage of the functional benefits of hot melts because of their low viscosity handling capability.

As a result, a new family of coating machines has developed, which includes:

1. Gravure Coaters
2. Reverse Roll Coaters
3. Kiss Coaters
4. The Gen-Pac Coater
5. The Dicoater and Park Coaters
6. Extrusion Coating
7. Curtain Coating

Each of these will be discussed in somewhat more detail. Bear in mind that each particular application may have its own particular variations including special chemical or electrostatic web treaters, preheating and/or post heating and is generally adaptable to laminating as well as coating.

There are, as well, in plant modifications older equipment and conventional waxers. These may include any or all of the following:

1. Increased heat capability
2. Addition of doctor blades to more effectively meter off excess melt
3. Introduction of variable speed drives to extend machine controls

Incorporation of these modifications can extend the handling capacity of a coater from perhaps 100 centipoise to 5000 centipoise or more at low coating speeds.

1. Gravure Coating

In Gravure Coating, the hot melt is applied directly to the web from an etched or ruled roll immersed in the melt. The amount of melt picked up is controlled by a doctor blade against the gravure roll and the coating is transferred to the web at the nip between the gravure roll and the back up roll. The coating generally shows the pattern of the gravure roll and is smoothed by heated rolls or bars prior to chilling.

Gravure coating may also be done by the indirect method. Here the gravure roll furnishes melt to a smooth applicator roll.

Hot Melt Coating
And Laminating

1. Gravure Coating (Cont'd)

The general upper limit of gravure coating is about 10,000 centipoise with 2500/5000 being a preferred range.

The Inta Roto Machine Company manufactures gravure coaters.

2. Reverse Roll Coating

Reverse roll coating is based on a melt applicator roll which turns in the opposite direction to web travel. The applicator roll is supplied melt from a fountain against the roll. A smoother roll turns against the applicator roll and the coating weight is controlled by the pressure between the rolls. The capacity of reverse roll coaters may be as high as 15,000 centipoise at 300°F.

The Tidland Machine Company manufactures reverse roll coaters.

3. Kiss Coating

A Kiss Coater applies the coating to the under side of a web held in contact with the applicator roll. The excess coating is metered off by a doctor blade or metering bar. This method is generally limited to about 600 feet per minute web speed and should be limited to fairly strong webs.

4. Gen-Pac Coater

The Gen-Pac is a slotted head coater manufactured by Frank W. Egan and Company. The melt is pumped through the slotted head and applied to the under side of the web. Excess melt is scraped off by a metering blade. Two side coating can be accomplished by adding a second head in the system. Web tension is very critical in this system to insure uniform coating weight across the web. The Gen-Pac is said to be capable of handling viscosities as high as 40,000 centipoise and quite readily handles 20,000 centipoise at machine speeds up to 1000 feet per minute.

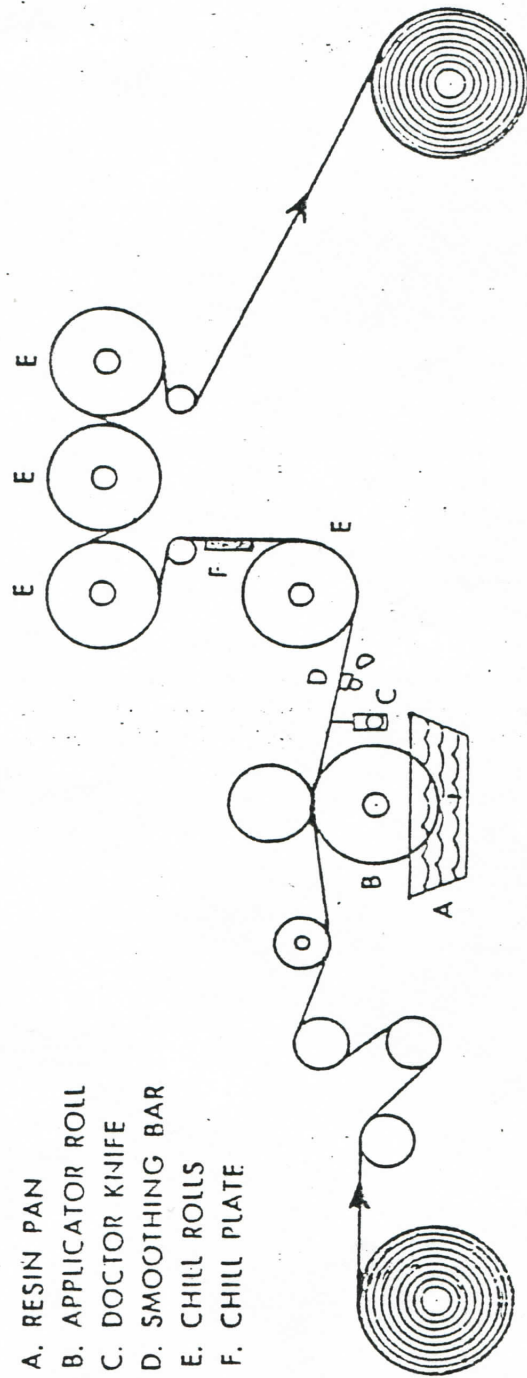
5. Egan Di-Coater, Park Coater

These units are slotted head coaters differing from the Gen-Pac in that the slot is narrower and coating weight is controlled by pump speed and amount of melt delivered to the head. Tension control is less critical and foaming in the coating tank is less of a problem since no melt is returned.

Modified Roll (Higher Viscosity web coater)

HOT ROLL "KISS" COATER

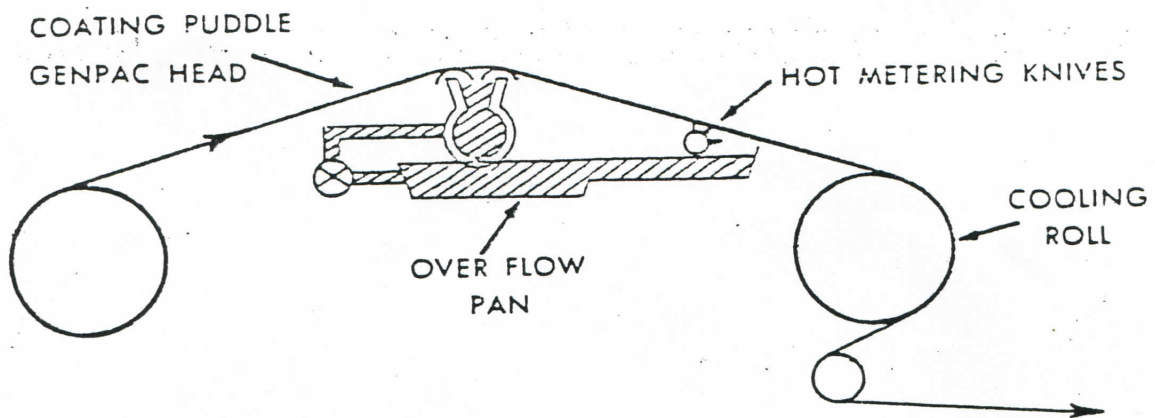
- A. RESIN PAN
- B. APPLICATOR ROLL
- C. DOCTOR KNIFE
- D. SMOOTHING BAR
- E. CHILL ROLLS
- F. CHILL PLATE



Egan Genpac Coater (web coater)

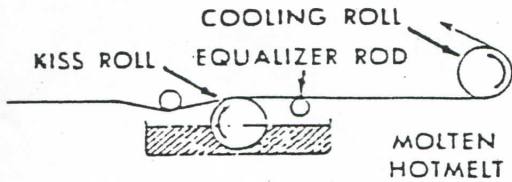
B. GENPAC

FRANK W. EGAN & COMPANY



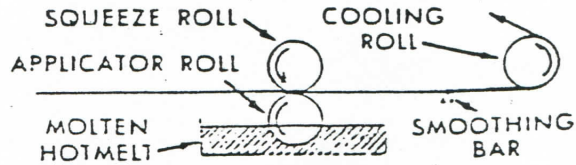
Roll Coater (Waxers) for low Viscosity web application

SINGLE ROLL (COATING ONE SIDE)



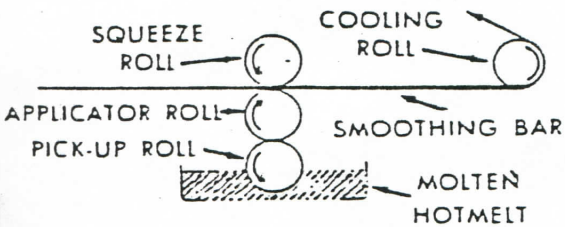
Hotmelt applied by single kiss roll. Sufficient heat must be supplied to kiss roll and melt to maintain temperature at 300-325°F. Excess removed by equalizer rod. Water cooled roll sets the Hotmelt coating prior to rewind.

2-ROLL (COATING ONE SIDE)



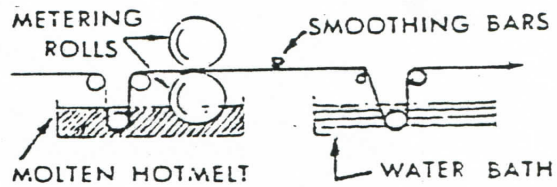
Hotmelt metered onto paper between applicator roll and hard rubber squeeze roll. Coating levelled by smoothing bar. Sufficient heat must be supplied to applicator roll, melt and smoothing bar to maintain temperatures at 300-325°F. Water cooled roll sets coating prior to rewind.

3-ROLL (COATING ONE SIDE)



Hotmelt transferred from pick-up roll to applicator roll and metered onto paper between applicator roll and hard rubber squeeze roll. Coating levelled with smoothing bar. Sufficient heat must be supplied to pick-up roll, applicator roll, melt and smoothing bar to hold temperatures at 300-325 F. Water cooled roll sets coating prior to rewind. System provides best thickness control at high speed.

DOUBLE COATER (COATING BOTH SIDES)



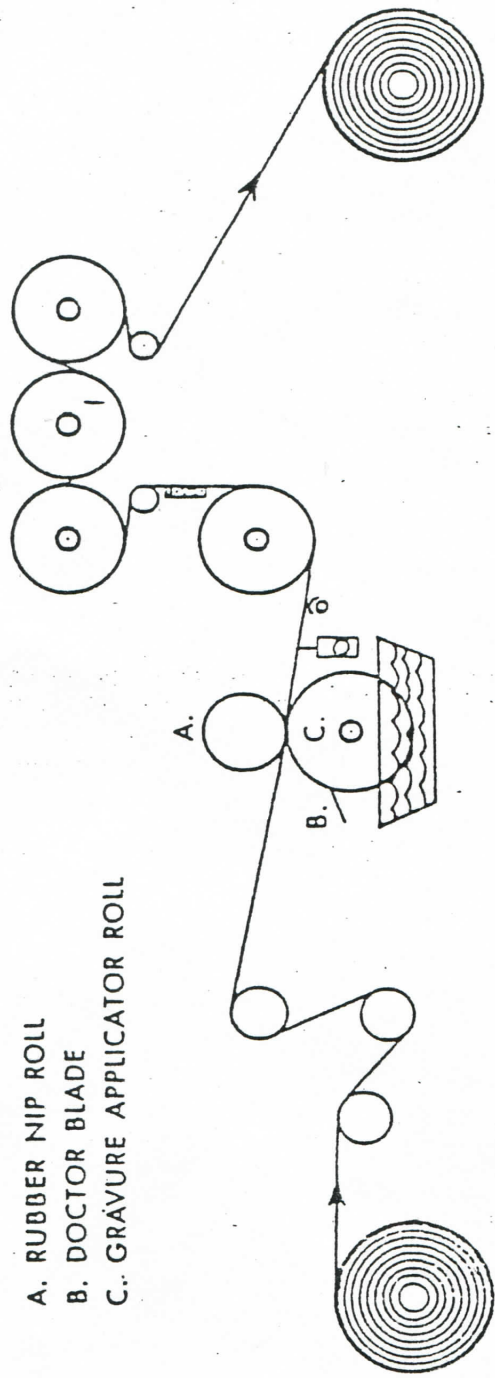
Paper fed through melt. Coating metered between two steel rolls. Two smoothing bars level coating. Sufficient heat must be supplied to metering rolls, melt and smoothing bars to maintain temperatures at 300-325 F. Water bath sets coating prior to rewind. Rapid chilling provides high gloss.

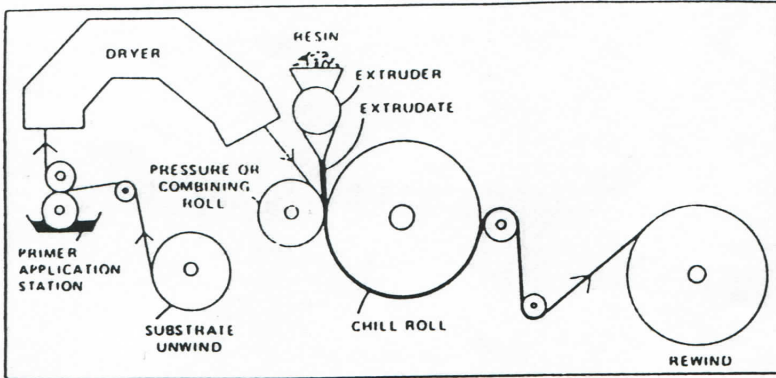
o) GRAVURE COATER

A. RUBBER NIP ROLL

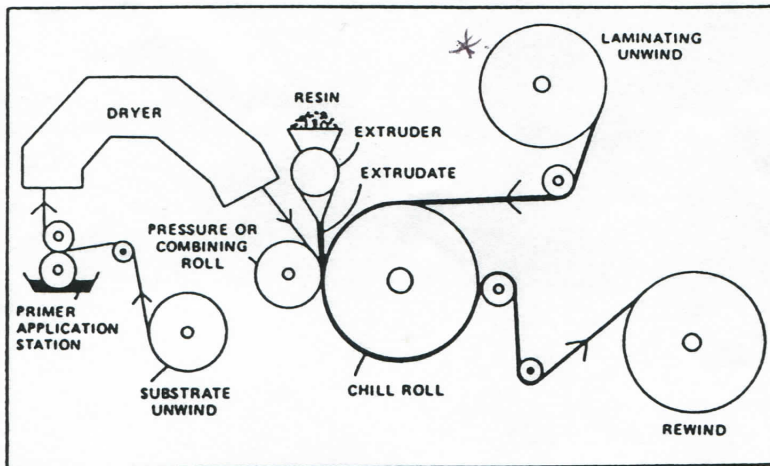
B. DOCTOR BLADE

C. GRAVURE APPLICATOR ROLL





Extrusion coating.



Extrusion laminating.