

# Load Unitization

## Side by Side Comparison

Shrinkwrapping or Stretch-Hooding Systems		Stretch Wrapping Systems
✓	<i>Offers complete five sided protection to avoid water seepage</i>	<input type="checkbox"/>
✓	<i>Improves unitization by affixing the load to the pallet with film</i>	<input type="checkbox"/>
✓	<i>Reduces valuable handling time by offering a faster application rate</i>	<input type="checkbox"/>
✓	<i>Offers flexibility by incorporating a "sleeve" option for added reinforcement</i>	<input type="checkbox"/>
✓	<i>Avoids "unraveling" throughout the handling/distribution process</i>	<input type="checkbox"/>
✓	<i>Offers the option of having marketing message printed on the film's surface</i>	<input type="checkbox"/>
✓	<i>Improves brand equity by allowing pallet load content to be easily viewed through a single film layer</i>	<input type="checkbox"/>

Stretch-Hooding or Shrinkwrapping can accommodate a wide variety of applications:



Building Materials



Boxes



Bags

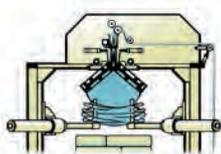


Pails and more...

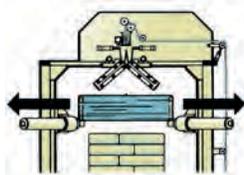


Stretch-Hooding and Shrinkwrapping can provide an under pallet wrap, which unitizes the load to the pallet.

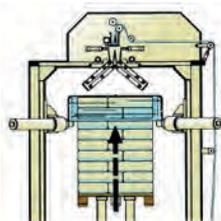
The Stretch-Hooding process:



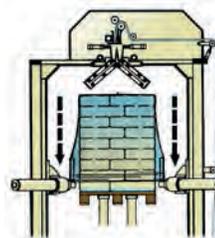
**1** Tensioning fingers take up the unstretched hood.



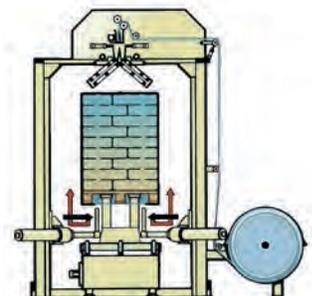
**2** Tensioning fingers pull apart, stretching the hood.



**3** The pallet load is raised.

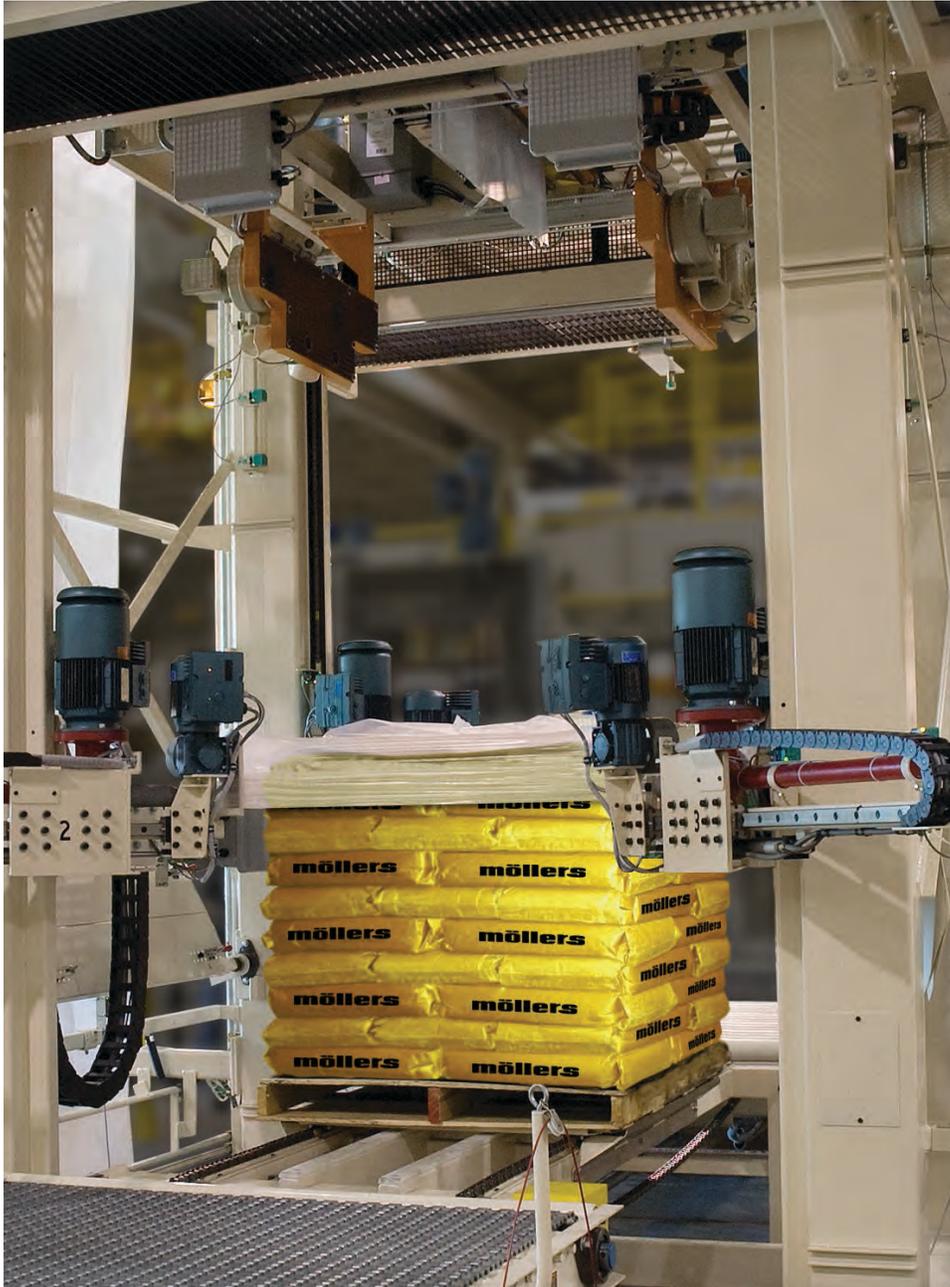


**4** The hood is pulled down over the load.



**5** The hood is stretched under the pallet to secure the load.

# HSA Automatic Stretch-Hooding Systems\*



\*U.S. and other patents

Protecting palletized loads using stretch film is a reliable, cost-effective alternative to shrinkwrapping. The one-piece hood is stretched over the pallet load to tightly secure it, without heat. As a result, you save the cost of energy and reduce the environmental impact.

The stretch hood forms a smooth-surfaced envelope which is dependably watertight, and can also act as a surface for advertising messages.

## Features of the HSA Stretch-Hooder include:

- Hoods are made from a supply reel of gusseted tubular film, measured, heat-sealed and cut to the proper length.
- An optional height scanning device selects the required film length, to allow handling of mixed load heights automatically.
- A capacity of up to 120 pallet loads per hour can be achieved.
- Handle a wide range of load sizes, up to a maximum size of 48" x 120." (Please consult factory for other sizes.)
- Adjustable stretch arms can automatically accommodate a wide range of load sizes and shapes (square to rectangular).



Control pendant with vertical and horizontal movement.



Splicing table with clamps folds down allowing fast and easy film roll splicing.



Hoist and dual film roll option.



Film roll hoist features support beam with straps to secure film roll.

# HSA/CBC Automatic Corner Board System with Top & Bottom Caps

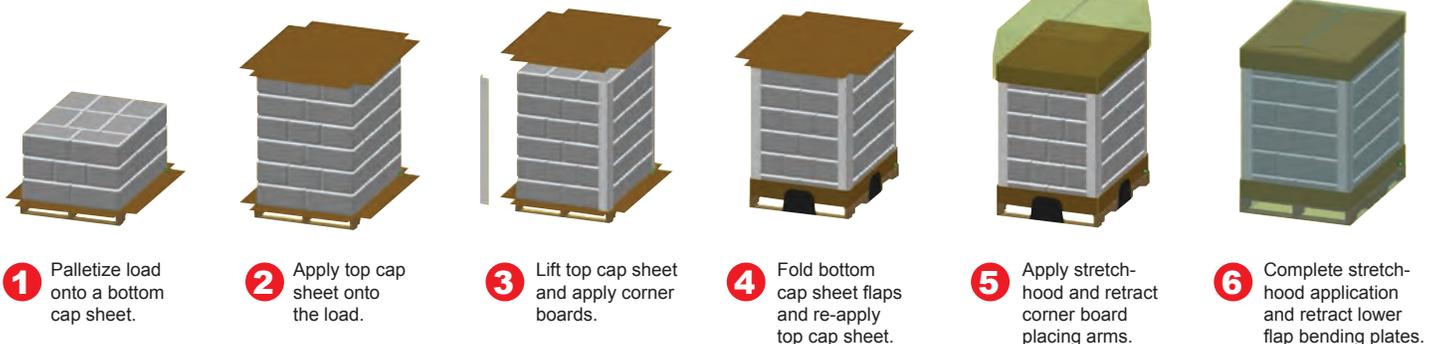
The Mollers North America Corner Board System automates the process of placing four corner boards with top and bottom caps to a wide variety of load types unitizing and securing the load to the pallet with a stretch-hood. The base design of the system includes adjustments, allowing the system to automatically accommodate a range of loads sizes simultaneously.

- The corner board magazine has a carousel design, allowing for multiple magazine cartridges of corner boards
- Each magazine cartridge can hold up to 30 corner boards
- The multiple magazine cartridges can accommodate corner boards of varying sizes for a wide range of palletized loads
- Carousel rotation is controlled with servos, allowing for precise positioning during corner board retrieval and for proper staging
- The pivoting corner board placing arms are servo controlled for rotational and linear movement
- A mechanical clamping device secures the corner board from the magazine, and a 'pivoting wrist' aids in the precise positioning
- Placement function can be accomplished within 'trained mode' (recipe driven) or 'discovery mode' (fully automatic)
- The pivoting corner board placement arms are retracted after the corner boards are secured at the base with the flap folding system and at the top by the stretch-hood



US Patent #: US 8,938,934 European Patent #: EP2608953B1

## The Corner Board process with the application of top and bottom caps:

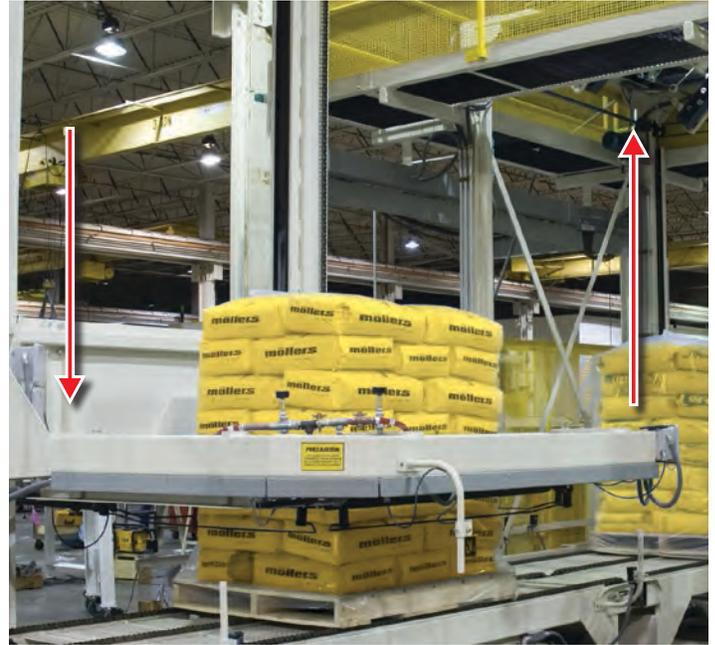


# Shrinkwrapping System

## FSA Film Placing Station



## ASF Film Shrinking Station



Shrinkwrapping has proven to be a highly effective and adaptable method of protecting and securing a wide variety of unit loads during shipping. Mollers shrink and stretch film systems are ecologically and economically sound ways to protect loads.

### Features of Mollers Film Placing station include:

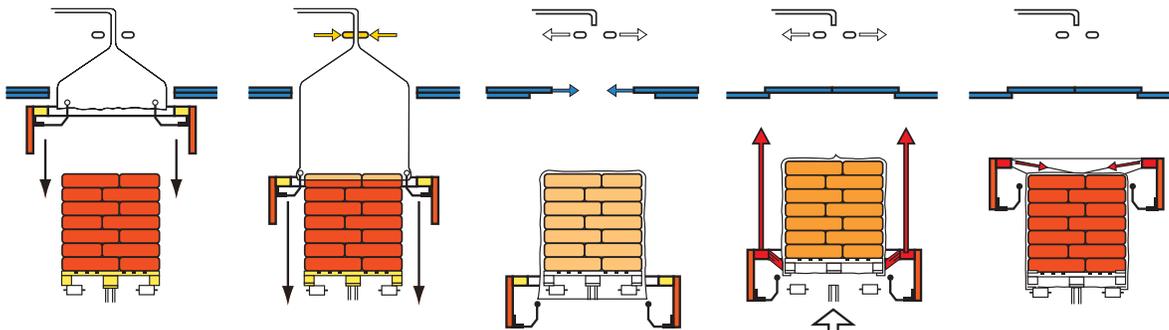
- A height detector measures the load to automatically size the hood accordingly.
- Hoods are made from a supply reel of gusseted tubular film; hood length is adjustable to suit the load height, reducing material waste.
- Patented non-contact system for film guidance prevents displacement of light packages or damage to the film and corners of the load.

Depending on your working environment, Mollers shrinkwrapping systems are available with either electric or gas heated shrink frames. Electric shrink frames are ideal where gas shouldn't be used for safety reasons.

### Features of Mollers Shrinkwrapping station include:

- A hydraulic elevator raises the pallet load which allows the film to achieve the under pallet shrink.
- Under-pallet shrink reinforces the bond between the load and the pallet, increasing stability.
- System can handle 60–80 loads per hour.
- Shrink film can be changed in less than five minutes.
- Shrink frame can be adjustable to accommodate varying load sizes.

### Film Placing and Shrinkwrapping process:



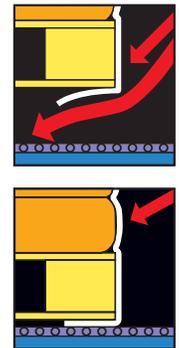
**1** Load size is measured and film is opened and placed onto tensioning fingers.

**2** Required length of tubular film is withdrawn. Film is cut and sealed to form a hood.

**3** Tensioning fingers lower hood onto the load with the patented, non-contact placement method.

**4** Load is positioned into the shrinkwrapping station; the load is raised and the shrink frame is lowered to evenly shrink hood.

**5** Shrink frame in top operating position allows the shrinks the upper surface of the load and the process is complete.



Detail of under pallet shrink process.