



67 Commander Blvd #4
Toronto, Ontario
M1S 3M7
Tel: (877) 644-6445
sales@celplast.ca

March 25th 2010

Ref: Flowrapper (HFFS), VFFS & BOPP Film 101

VFFS/HFFS (FLOWRAPPER) MACHINERY

Vertical and Horizontal form fill sealing machine (VFFS & HFFS) is a type of automated assembly-line product packaging system, commonly used to in the packaging industry for food, and a wide variety of other products. The machine constructs plastic bags out of a flat roll of plastic film, while simultaneously filling the bags with product and sealing the filled bags. Both solids and liquids can be bagged using this packaging system.

The typical machine is loaded with a continuous flat roll of plastic film, which has had labeling and artwork applied to the exterior or interior of the film. Note that while plastic is the most commonly used packaging material in the food industry, the technology can also be used to form continuous paper and fabric product containers by changing the edge sealing/seaming methods.

For some products the film may first be fed through a sterilizing chemical bath and dryer prior to use in the packaging system.

The film approaches the back of a long hollow conical tube, and when the center of the plastic is near the tube, the outer edges of the film form flaps that wrap around the conical tube. The film is pulled downward around the outside of the tube and a vertical heat-sealing bar clamps onto the edges of the film, bonding the film by melting the seam edges together.

To start the bagging process, a horizontal sealing bar clamps across the bottom edge of the tube, bonding the film together, and cutting off any film below. The sealed tube end is then lowered onto a precision weighing table and the product to be bagged is dispensed through the long conical tube in the center of the bag.

When the tare weight of the product-filled bag is reached, filling stops, and the horizontal sealing bar seals the top of the bag, and simultaneously forms the bottom of the next bag above. This bag is then cut off from the tube and is now a sealed package, ready to advance onward into the product boxing and shipping processes.

During the final sealing process, the bag may be filled with air from a blower or from an inert gas supply. Inflating the bag helps reduce the crushing of fragile products such as potato chips,

while inflating with an inert gas helps drive out oxygen and retards the growth of bacteria that would spoil the product.

Dual web systems are also available for four side sealed pouches, as well as pouches requiring different materials for each side. Dual web systems use two rolls of material instead of one, which are fed in from opposite sides of the machine. The bottom and sides are heat sealed together to form the pouch, and the product is loaded from the top. The pouch with loaded product then advances downwards and the top is sealed and pouch is cut off. The sealing of the top of the pouch forms the bottom of the next pouch. During this process a tear notch may be added.

The feeding of material and cutting of the pouch can be determined either by pouch length, or indexing to an eyespot, which is detected by a visual sensor.

While single web systems are popular for food applications, the dual web four side seal system is often popular for IVD and Medical device products.

Closely related is the horizontal form-fill-seal machine, which is generally uses more floor space than a vertical system.

Modern advancements in pouch forming technology have allowed for smaller and smaller Vertical pouch forming systems

BOPP FILM

BOPP Film is a bi-axially oriented polypropylene (BOPP). This material has good clarity, resistance to UV light, excellent chemical and abrasion resistance, and a smooth surface. The clear material has a reasonable scuff resistance and a great acid resistance. Our material is also inert to most mild chemicals and has a fair heat resistant allowing for heat sealable BOPP films. This material is softer and more flexible than polyester. We have the BOPP film for you, no matter what your application. There are over 1,000 variants of BOPP films. Films include many types of coatings, such as silicone, adhesive, premask, corona, print treatments, clear or matte etc. BOPP film has a wide range of applications including but not limited to products for the metallizing, packaging, stationery, tape and label, as well as decorative markets. Here is a small list of some of the different types of BOPP Film Supply we we carry, laminated BOPP film, industrial BOPP film, metallized BOPP film, coextruded BOPP film, tape BOPP film, label BOPP film, packaging BOPP film, stationery BOPP film, and decorative BOPP film. "Biaxially Oriented" tell you that the polypropylene film has been stretched in both the machine direction (MD) and across machine direction (AMD). Superior strength at low gauges (allows for high speed processing), flatness, clarity and printability, are just a few of the reasons BOPP film has become the most rapidly implemented film product across the world and is used commonly in Vertical and Horizontal form fill and seal machinery (VFFS and HFFS (Flowwrapping))