

# What You Need To Know About E3 Wrap Stretch Film



Stretch wrap film is a highly stretchable plastic film commonly made from Linear low-density polyethylene (LLDPE) that is wrapped around items. The elastic recovery keeps the items tightly bound.

Stretch film is commonly used to [wrap products on pallets and secure them to each other and the pallet](#). This often helps to reduce products loss, discourage load tampering, and reduce worker injury. In order for us to determine the right supplier who could give us the quality product/stretch film we need, 3 factors has to be considered.

- The material/composition of LLDPE
- The Process/Extrusion used in making the [Stretch Wrap Film](#)
- Stretch Wrap Gauges, choosing the right size of stretch wrap is critical because different size films are gauged to handle different size loads.

## Material Composition of LLDPE

The most common stretch wrap material linear low-density polyethylene or LLDPE, which is produced by copolymerization of ethylene with alpha-olefins, the most common of which are butene, hexene and octene. The use of higher alpha-olefins (hexene or octene) gives rise to enhanced stretch film characteristics, particularly in respect of elongation at break and puncture resistance. Other types of polyethylene and PVC can also be used. Many films have about 500% stretch at break but are only stretched to about 100 – 300% in use. Once stretched, the elastic recovery is used to keep the load tight.

Below is a breakdown of the two most commonly used extrusion processes of stretch film.

*Extrusion* is the manufacturing of stretch film and a variety of other flexible plastic products.

**Cast Stretch Wrap** - is manufactured using a cast extrusion process. The Cast extrusion process is a continuous process by which a thermoplastic material is melted and extruded through a flat die onto a chill roll, where it is quenched and re-solidified. This process allows the Cast stretch film to have excellent clarity, require less force to stretch, increased tear resistance, unwind quietly from machines, and offer a superior cling. There are both machine grade and hand grade cast stretch film available.

- [Advantages of Cast Stretch Film](#) - Generally less expensive than blown stretch film, due to reduced manufacturing costs. Increased clarity allows users to see wrapped products. Cast stretch wrap unwinds quietly compared to blown stretch wrap. Cast stretch film offers two – sided cling that allows the wrap to stay securely wrapped.
- [Disadvantages of Cast Stretch Film](#) - Does not offer the load/holding power blown stretch film offers. Cast stretch film has less memory and tear resistance than blown stretch film.

**Blown Stretch Wrap** - is manufactured using the blown extrusion process. This Plastic melt is extruded through an annular slit die, usually vertically, to form a thin walled tube. Air is introduced via a hole in the center of the die to blow up the tube like a balloon. On top of the tube an air ring blows onto the film to cool it. This process allows blown film to be tougher and more resilient than cast film. The higher mechanical properties of blown film typically allow a greater load holding power.

- [Advantages of Blown Stretch Wrap](#) - Offers higher load and stretch capacity. Blown stretch film is a higher quality of film. Blown stretch film has a higher degree of memory once stretched allowing loads to stay better secured. A higher tear resistance is an advantage when securing loads with sharp edges.
- [Disadvantages of Blown Stretch Wrap](#) - Higher cost due to manufacturing process. Blown stretch wrap has poor clarity due to crystallization in the manufacturing process. Blown film is also noisy when unwound from rolls.

### Stretch Wrap Gauges Conversion Table (Film Thickness)

Microns (my)	Millimeter	Mil	Gauge
8	0.008	0.315	30
10	0.01	0.394	40
12	0.012	0.472	47
15	0.015	0.590	60
17	0.017	0.669	67
20	0.02	0.787	80
23	0.023	0.905	90

#### Technical Data on Stretch Film

Gauge	Stretch Film Ideal Load Limit (just to give idea on load limit but not as Specification Limits)
30	(no information available)
40	Excellent cost saver when wrapping light loads less than 800 lbs.
47	A stiffer machine film that works great with most machines. Great for lighter boxes and loads less than 1800 lbs.
60	The true gauged 60 gauge film offers excellent stretch during machine application.
67	is convenient for stretch wrapping ordinary loads.
80	Machines promote more efficient wrapping and reduce waste. suitable for stretch wrapping heavy, unstable loads, with sharp edges.
90	The ability to run with a higher tension with less tears. Excellent stretch rate and memory. suitable for stretch wrapping heavy, unstable loads, with sharp edges.

Additional Technical Aspects to consider for Stretch Film Wrap

**Yield (sq.in/Lb)** - Yield Strength, The amount of stretch a film can have without permanently deforming

**Elmendorf Tear (Gms/Sht)** - Another common test used for stretch film and other products to measure tear resistance

**Haze (%)** - Refers to lack of clarity in a film. Blown stretch films commonly have more haze than cast stretch films due to crystallization during the manufacturing process.

**Gloss (%)** - The amount of light reflected from a film's surface. Cast stretch films tend to have a higher gloss than blown stretch films.

**Ultimate Tensile Strength** - the ability of a material to resist a direct pull.

**Max. Elongation** - The elongation of a material, refers to the difference of length between an unstretched tensile-strength and the breaking point length. High elongation is great for stretch films and help to secure and unitize a load. It is also important for a stretch film to have an adequate tensile strength for the load it is securing.

**Dart Drop** - A commonly used test to measure puncture strength of a stretch film. It is conducted by dropping a semi-circular shaped object onto the film.

**Cling** - Allows the film to stick to itself and not the product. Some films have one sided cling and others have two sided cling, to increase the stickiness quality of the film.