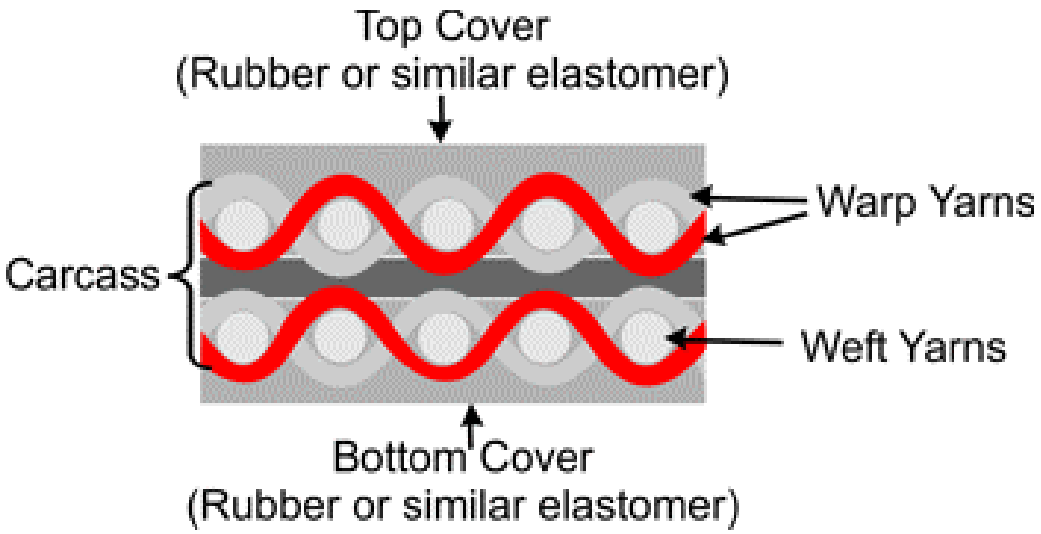
Composition of a Conveyor Belt



1. Top cover
2. Carcass
3. Bottom Cover

The covers protect the carcass against damage and any special factors that may be present in the operation environment. The belt carcass carries the strength for starting and moving a loaded belt, absorbs the impact of material loading and provides stability for proper alignment.

Covers

Rubber like compounds (elastomers) are used for the covers of the conveyor belting and the bonding of the belt carcass. There are a wide choice of covers available with properties suitable for a number of service conditions. The function of the cover is to protect the carcass, but it also provides the finished belt with a variety of desirable properties. Texture of the cover can help control the product through friction. It may help with resistance to fire, oil or chemicals. Usually, the cover is the lowest cost component of the belt.

Carcass

The layer most greatly influencing belt tear resistance, load support, impact resistance and fastener-holding ability is the carcass. Load support is provided through the carcass' bulk and lateral stiffness. The carcass provides the tensile strength to move the loaded belt. The impact of the material being loaded onto the conveyor is absorbed through the carcass. Finally, the carcass has to provide enough strength for fastener holding.

Belt Fabric

Conveyor belt fabric is made up of weft yarns which run cross-wise and warp yarns, which run lengthwise. There are four common weave patterns: plain weave, straight-warp weave, solid-wove weave, and woven-cord weave.

In the "plain weave", the weft and the warp pass over and under each other. Both members are crimped. Because there is a great deal of stretch in either direction, this type of weave is sutiable for a power belt curve.

The "straight-warp" weave is when the warp yarns are uncrimped. Weft yarns are laid transversely and alternately, above and below the main tension yarns. The yarns are locked together by another series of lengthwise yarns known as the binder warp system, which locks the tension and weft cords tightly together. This eliminates "geometric stretch". This type of weave is not recommended for a belt curve.

The "solid-woven" weave is an extension of the "straight warp" weave. This is a fabric with multiple weave, at least two warp systems and two or more planes of filling yarn. It is used primarily in single-ply belts. This type of weave is not recommended for a belt curve.

the "woven cord" weave has strong warp yarns and light weight, interwoven filler yarns. The filler yarns hold the carcass together during the belt manufacture. This fabric is used in combination with plies of plain weave fabric as a conveyor belt carcass.

Today, most conveyor belt fabrics are produced with polyester warps and nylon wefts. This allows high strength, low stretch, with impact resistance, load support and fastener-holding ability.

In most cases, no other part of the belt conveyor system will be more economically important than the conveyor belt itself. the selection of the conveyor belt must be carefully made. Portec has years of hands on experience with belting. We will be able to guide you towards the best belt available to fit your application needs.