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Technical Article
Technical Article Content Pulled from the NIBA Belt Line Newsletter

Belt Camber: How to Fix Cambered Nylon Core Belting and Prevent Camber in Storage

Contributed by Nitta Corporation
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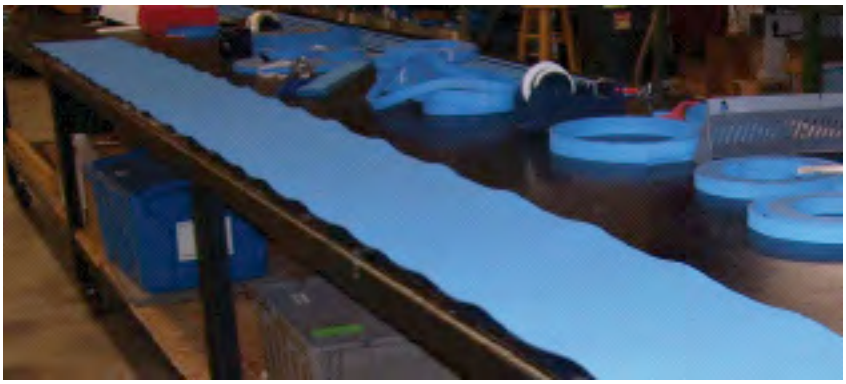
What is Camber?

Camber is the term used to describe an arc or curve that occurs in otherwise straight material. Generally, if camber occurs in belting, it is in a nylon (polyamide) core type material. Nylon core belting is more susceptible to camber than other types of belting because nylon tends to absorb humidity from the surrounding environment more than other materials such as polyester.

If there is a dramatic change in environmental conditions – for example, if material is moved from a dry environment to a very humid environment – camber is likely to occur. Moisture is absorbed from the edges, so the outer sections of material contain more than the middle section (see Photo 1). This can form abnormal stresses within the belt, which release when the belt is slit, resulting in camber (see Photo 2).

"Material Absorbs Moisture from Edges, so Outer Sections Contain More"



"Abnormal Stresses within Material are Released when Belt is Slit, Resulting in Camber"

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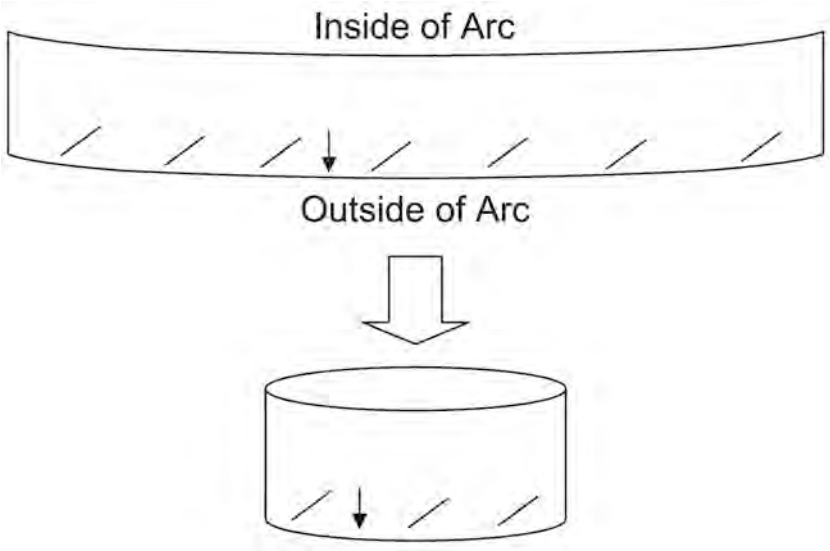
How to Fix Cambered Nylon Core Belting

In general, cambering tends to lessen on its own as time goes by. A well-balanced moisture ratio and proper storage are essential to prevent any cambering or wavy edges.

If cambering or wavy edges occur, there are several methods for correcting the problem:

1. If time can be allowed before the material is slit and used, firmly wind up the belt and leave it with the cambered side of the belt on a clean table for at least a week (see Illustration 1). Or, hang the coil on a rack (on a heavy cardboard or wooden core) so the moisture content can equalize. Depending on belt type and width, this could take up to several weeks. Belts with a thin nylon core and/or narrow width will show good improvement within a few days.

"Corrective Placement of Cambered Belt"



2. If cambering or wavy edges occur on a belt that isn't coiled (such as a belt slit from a cambered or wavy roll, which will also camber), it can be fixed by coiling and following the method described in corrective action #1. Once the camber is corrected, it won't occur again even if the material is made endless, provided it is properly stored and does not absorb more moisture on one edge than the other.

3. If a cambered belt is otherwise ready to install, it may not be necessary to take any action other than to install it. Camber usually disappears within 24 hours after a belt is installed and tensioned properly. Applying tension reorients the fibers to relieve camber, and 95% of the time camber does not affect belt performance at all. Some shorter, wider belts may encounter issues, but in most cases running a belt

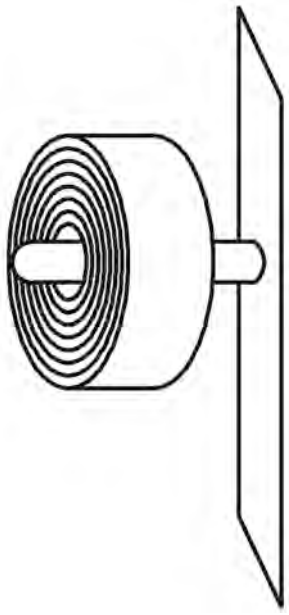
under tension is an effective method to relieve camber. It should also be noted that belts running under tension are extremely unlikely to experience camber even under adverse environmental conditions.

4. Distortion may occur if material has not been wound properly. If this happens, loosen the roll and leave it for a day or two. The material should relax and correct the problem.

How to Store Nylon Core Belting to Prevent Camber

The best way to prevent cambering is by using Storage Method 1. Belting should be coiled around a heavy cardboard or wooden core (for support) and hung on a rack. Core should have Outer Diameter of 6.5".

"Hang Belting on Rack using Heavy Cardboard or Wooden Core"



Storage Method 2 is also an effective way of storing material. By storing the belt upright, both edges are equally exposed to the surrounding environment. Belting stored this way should, however, be placed on a pallet or other elevated surface (not directly on the floor) and wound tightly (on a 6.5" OD heavy cardboard or wooden core) to avoid deformation.

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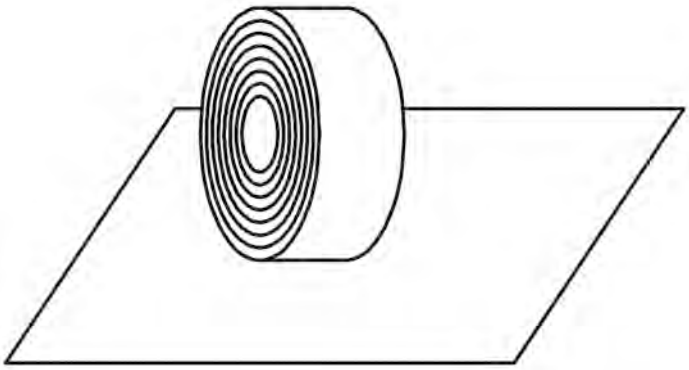
"Store Belting Upright on Pallet or Elevated Surface"



Do not use Storage Method 3 for full or wide rolls of material. It is only appropriate for narrow rolls of belt, and as with Storage Method 2, a pallet or other elevated surface should be used.

"(Narrow Rolls Only): Flat on Pallet or Elevated Surface"