



NIBA—The Belting Association
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Technical Article

Technical Article Content Pulled from the NIBA Belt Line Newsletter

Non-Metallic Belt Fasteners—The Third Option

Most NIBA members are keenly interested in helping customers keep their conveyors running efficiently and effectively. A major key to achieving this objective is using a belt that is properly specified and properly installed on the conveyor. The two options most frequently pursued to install a belt are vulcanization or some type of metallic mechanical fastener. There are times when a mechanically fastened belt would be prescribed, but is precluded from use because the fastener's metal construction is inappropriate for the application. It is in applications like these that a third option might be worthy of consideration – non-metallic belt fasteners.

Non-metallic fasteners combine the convenience and economy of hinged mechanical splices with the advantages of being non-metallic. Some of the more notable benefits of this type of mechanical fastener are that it can be non-marking, non-abrasive, compatible with metal detectors, and made entirely from FDA approved materials. These features combine to make them a viable alternative for applications such as x-ray or scanning, food handling, pharmaceutical processing, and conveying products that are susceptible to marking. There are three basic types of non-metallic splices—plastic rivet, plastic spiral, and flexible plastic two-pin fasteners.

Plastic Rivet Fasteners

The plastic rivet fastener is a non-metallic splice that can be installed on-site with a portable installation tool. Installation requires using a template to punch holes in the belt and then using the application tool to form rivet heads that are molded into the fastener. This is accomplished with heat generated by friction from a special spinning tool bit. The plastic rivet fastener is suitable for belt thicknesses up to 1/8" (3.2mm), operating at less than 65 PIW (11 kN/m) and with 1–1/2" minimum diameter pulleys. Its nylon construction allows for use in temperatures up to 180°F (82°C) and is available in FDA approved materials.

Plastic Spiral Fasteners

The plastic spiral fastener provides a non-metallic fastener alternative with a very low profile and the ability to operate over pulley and nose bar diameters as small as 1/2" (13mm). The monofilament spirals of this fastener are sewn into a woven fabric, which, in turn, is connected to the belt end by various hot or cold splice methods. Because of the necessary equipment and expertise required, this style of belt fastener is not typically installed by in-house maintenance crews. The plastic spiral fastener accommodates belt thicknesses up to 1/4" (6mm) with mechanical fastener ratings up to 50 PIW (8.7 kN/m). It is available in either polyester or PEEK materials suitable for operating temperatures up to 300°F (150°C) or 392°F (200°C) respectively. Like the plastic rivet fastener it is available in FDA approved materials.

Plastic Two-Pin Finger Splice

This style hinged non-metallic fastener is designed to be vulcanized into the belt ends and uses two nonrotating flat polyacetal pins to lock its fingers in place. It is constructed of either PVC or polyurethane and is available in a wide variety of colors and thicknesses to match the parent belt. Minimum pulley diameter requirements range from 1" (25mm) to 10" (250mm). It can accommodate belt thickness up to approximately 9/32" (7mm) and operating tensions up to 365 PIW (64 kN/m).



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These non-metallic fastener options are finding their way into more and more light duty belt applications. If your customers are looking for the advantages afforded by a hinged mechanical splice, but can't tolerate metal in their conveyor belt, perhaps one of these three designs offers a viable solution to keeping their conveyors running efficiently.