

## PRESS REPORT

### Conveying Clean: New EHEDG Conveyor Guideline Offers Hygienic Best Practices

By Julie Larson Bricher, EHEDG Contributing Writer  
Interview with Jon Kold, Chairman EHEDG Working Group Conveyor Systems

EHEDG Doc. 43, *Hygienic Design of Belt Conveyors for the Food Industry*, is one of the latest guidelines from the **European Hygienic Engineering & Design Group** to convey science-based best practices to food equipment manufacturers and food producers. The 76-page illustrated report is also the first to provide an in-depth look at “conveying clean,” detailing how the hygienic design of belt conveyors can contribute to enhanced food safety while reducing production costs.

Published in April 2016, Doc. 43 is the result of five years’ work by the EHEDG Working Group on Conveyor Systems, a team of subject matter experts, engineers and scientists in the field of food science and technology.

“In 2011, EHEDG asked me to chair a working group tasked with writing a guideline for conveyors used in the food processing industry,” says **Jon J. Kold**, who also serves as regional section chair, **EHEDG Denmark**. “The group attracted broad industry participation, from the cleaning industry to food manufacturers to leading conveyor manufacturers. Competitors worked together to define best practices in this area because efficient hygienic design of conveyors and belts—food-contact equipment installed in nearly every food plant—is essential to ensure a high level of food safety.”

The resulting EHEDG Doc. 43 guideline focuses on the hygienic design of belt conveyors used in food production environments where wet cleaning is mandatory. Due to the wide variety of foods manufactured, methods of production, cleaning regimes and types of conveyor systems in any given processing plant, the new guideline was developed with these complex challenges in mind.

“There are difficulties in proposing sweeping generalizations for hygienic conveyor and belt design due to the multiplicity of demands from the industry,” **Kold** notes. “Foodstuffs may be frozen, fried, cooked, or baked, and on the conveyor, they may be hot or cold, moist, oily or dry. In addition, products moving along the conveyor may be highly perishable, susceptible to microbial or chemical contamination, or may be highly inert.”

When the various types of belt conveyors used in food production and their level of cleanability are factored in, adds **Kold**, optimizing a facility’s line with hygienic design can be complicated. That is why the objective of EHEDG Doc. 43 is not only to assist food processors with knowledge about the availability of hygienically designed belt conveyors but also to provide equipment engineers better insight into areas of improvement. “It is important that the buyer is inspired to specify their needs in detail and for the supplier to see the possibilities for improved cleanability of these systems,” he says.

## The Nuts & Bolts of Hygienic Conveyors

EHEDG Doc. 43 provides a comprehensive overview of belt conveyor and component types, materials of construction and their hygienic attributes, and the challenges in maintaining the cleanliness of each. In addition to covering friction driven and positively driven conveyors, and fabric, modular, metal and wire, and round- and V-profile belts, the guidance discusses the hygienic design requirements for various components, including frames, belt support systems, lateral guides for belts, drive stations and motors and accessories. Basic design rules for construction engineers, a glossary of conveyor belt definitions, and appendices detailing related EHEDG guidelines also are included.

Individual sections provide definitions of the various belt conveyors and components, along with information about their function, application, construction as it relates to cleanability, and typical service and maintenance requirements. All sections feature a number of line drawings and photos to help illustrate basic hygienic design and operation do's and don'ts.

“When preparing Doc. 43, our EHEDG working group included many examples of the types of conveyors and components to describe what we are aiming for when it comes to hygienic attributes of these systems,” notes **Kold**. “From a hygienic design viewpoint, quite a few of them have shortfalls. This is one reason that the guideline is so important. It not only provides good ideas about what systems have hygienic aspects but also addresses some of the pitfalls that should be avoided. In addition, the guidelines include illustrations of a number of elements that still need close attention during production.”

EHEDG Doc. 43 also provides well-illustrated examples of belt conveyor systems and components along with typical or suggested cleaning processes. As noted in the guideline, the main objectives of the hygienic design of equipment for open processes are to ensure easy cleanability, to protect the product from contamination, and to avoid accumulation of soil, microorganisms, insects and vermin. It also must be possible to monitor and control all functions that are critical from a microbiological safety perspective.

**Kold** adds, “In the guideline we have tried to show many of the available possibilities, both in terms of conveyors and cleaning protocols. Some might be applicable to certain kinds of food production more than others, but all are presented against the backdrop of fundamental hygienic engineering and design principles in order to help advance best practices in this area.”

### Communication is Key

Kold emphasizes that among the most important messages that food manufacturers and equipment designers can take away from EHEDG Doc. 43 is to communicate with each other. Collaboration will result in enhanced hygienic best practices for the design and installation of new conveyors in the food production operation as well as for refitting old conveyor equipment.

For food manufacturers, the first step is to conduct a thorough Hazard Analysis and Critical Control Points (HACCP) evaluation. Specifically, making sure that critical control points (CCPs) are identified relative to the processing plant's conveyor systems.

“By using the HACCP approach, food producers are better able to define the objectives and identify the CCPs for their particular conveyor systems, taking into account the specific food types and associated contamination risks,” **Kold** explains. “This is an excellent way for food manufacturers to learn what is important to specify, since the HACCP evaluation requires one to observe the production line and process with a view toward understanding the potential hazards—and therefore what is needed to preserve food safety.

“CCPs are very different if you are producing a sliced ham, vegetable soup or a product with a short shelf life,” he adds. “In order to be able to specify what they need in terms of hygienic design, food producers have to be able to pinpoint their individual CCPs. If they can do that and communicate with conveyor engineers and designers, the suppliers will have powerful information to put theory into practice.”

Once the food producer has a clear understanding of the functionality and hygienic design-related shortfalls of the operation’s belt conveyor and parts, the next step is to share that information with the equipment manufacturers. “It’s a two-way street. Construction engineers need input from the food producers to ensure that they understand everything the customer needs,” says **Kold**. “This helps equipment engineers to identify the areas on which to focus during design and construction to achieve better applied hygienic solutions.”

EHEDG Doc. 43 serves as a useful guide, helping both parties build best-practices knowledge, adds **Kold**. “This document provides conveyor designers and engineers with inspiration and ideas for improvement,” he says. “Food producers will not only come away with information about the actual design criteria they should look for, but will be able to discuss the construction of a conveyor belt with more knowledge than before. After the HACCP evaluation, the food producer will be able to qualify those discussions and equipment manufacturers will then have an opportunity to see the shortfalls in design so they can improve construction.”

In addition to improvements in food safety, EHEDG Doc. 43 advises that food processors also can expect economic benefits from hygienically designed belt conveyor systems. Depending on the particular process and requisite food safety systems, the frequency of cleaning and the production stop times for cleaning conveyors and components between shifts can be reduced significantly by using hygienic design. Cost-savings also can be realized through reduced labor costs, especially if the plant is operating with clean-in-place (CIP) systems.

### **Moving Forward on Clean Conveyor Systems**

Kold expects that EHEDG will continue to update Doc. 43 as new technological innovations advance the hygienic design of belt conveyor systems. “The conveyor industry is moving fast, and we can already see that new solutions are being created,” **Kold** says. “The working group plans to continuously update Doc. 43 because there are a lot of challenges still to be addressed, particularly in terms of production and cleaning regimes.”

The EHEDG guidelines are available to order as downloads via [www.ehedg.org](http://www.ehedg.org).

Please contact the EHEDG Secretariat for more information ([secretariat@ehedg.org](mailto:secretariat@ehedg.org)).