

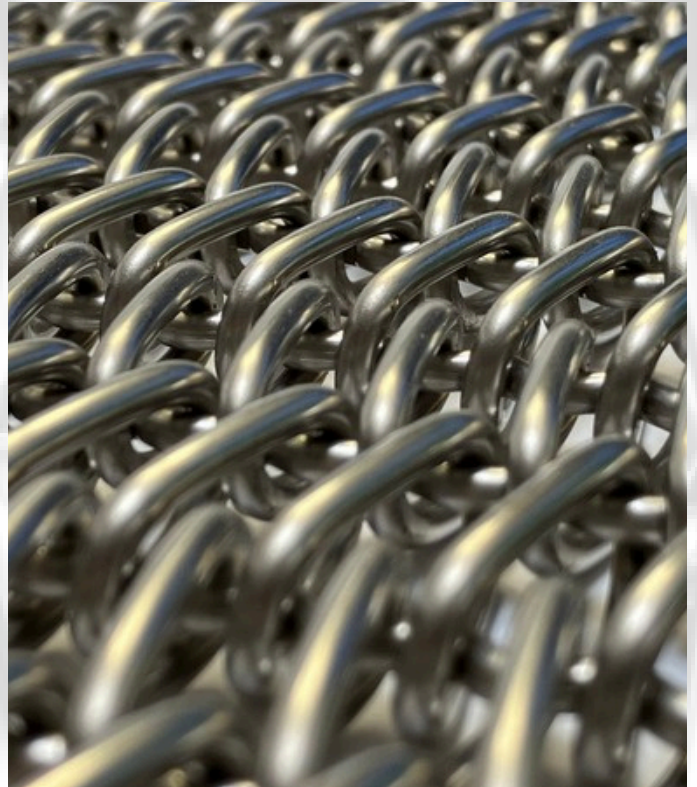
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Lehr Belts

Experience That Makes the Difference

For decades, Pennekamp has been closely associated with the development, manufacturing, and continuous improvement of lehr technology and conveyor systems. Our history as a lehr and belt manufacturer dates back to the early years of the glass industry's industrialization, and our experience in this field has grown continuously since 1945.

Over more than seven decades, Pennekamp has accumulated extensive know-how in both lehr engineering and belt technology. This unique combination allows us to fully understand not only the mechanical requirements of a lehr belt, but also its direct influence on production stability, energy efficiency, and product quality.



We work in close partnership with our customers worldwide and understand the practical demands of reliable, high-performance glass production. Based on this long-standing experience and close cooperation with the industry, we are able to recommend and select the optimal lehr belt design for each specific application.

Thanks to our broad project portfolio and deep process knowledge, Pennekamp is familiar with a wide variety of applications, product types, and operating conditions—and is therefore your reliable partner for tailored, long-lasting lehr belt solutions.

Key Criteria for Selecting the Optimal Wire Mesh Belt

The correct selection of the wire mesh belt is a decisive factor for the performance, energy efficiency, and service life of the lehr system. Several parameters must be carefully evaluated for each specific application:

1. Product Weight (Belt Load)

The weight of the glass articles has a direct influence on the mechanical design of the belt:

- Champagne bottles generate a high mechanical load.
- Perfume bottles represent a comparatively low load.

For each application, an optimal balance between spiral cross-section, spiral pitch, and cross rod diameter must be defined in order to ensure sufficient load capacity, stable tracking, and long service life.

2. Shape of the Glass Article (Contact Surface and Stability)

The geometry of the glass article and its contact surface with the belt play a crucial role in transport stability:

- Wide-necked jars are inherently very stable due to their shape and large contact surface.
- Perfume bottles may have a relatively small contact surface depending on their design; despite their voluminous body, this can result in reduced stability during transport.

In such cases, the belt design (mesh structure, spacing, and support characteristics) must be adapted to ensure safe, stable conveying and avoid tipping or product movement.

3. Airflow Through the Wire Mesh Belt (Annealing Quality)

The belt design has a direct impact on air circulation and temperature uniformity inside the lehr:

- A narrow spacing between spirals and cross rods restricts air flow, which can negatively affect annealing performance.
- A wider spacing improves air distribution in the process chamber and supports uniform heat transfer to the glass articles.

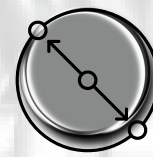
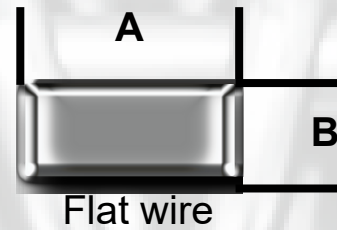
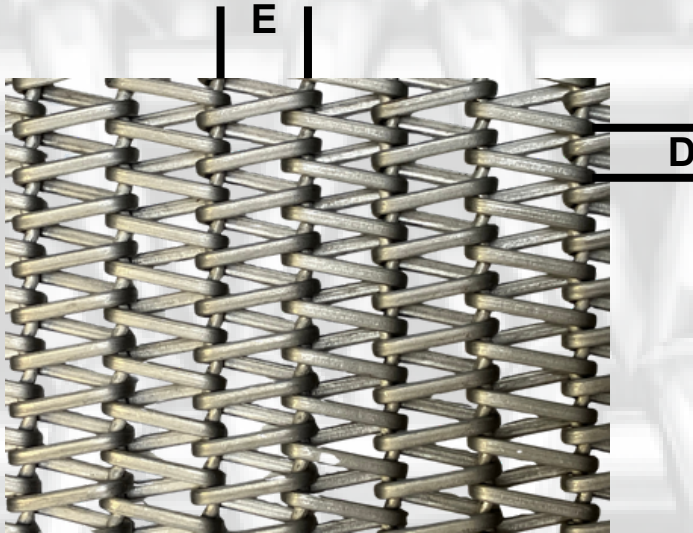
For optimum results, the ratio between spacing and material thickness must be individually adapted to ensure both excellent annealing quality and high mechanical strength.

4. Lehr Length and Operating Conditions

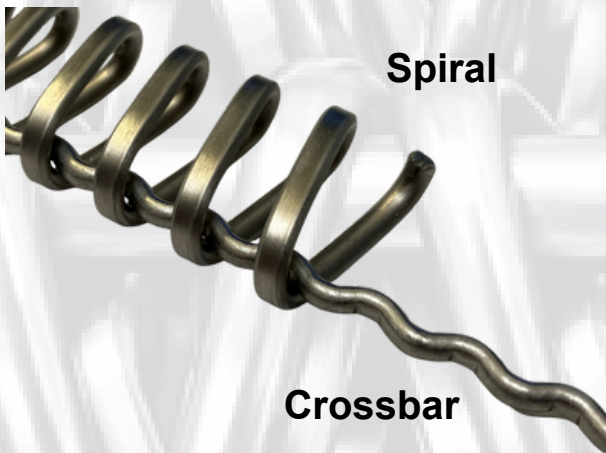
Wire mesh belts have a considerable dead weight. Together with the product load, the total moving mass can reach several tonnes and must be driven reliably by the lehr drive system. For this reason, the belt specification must be precisely matched to the lehr length, throughput, and operating conditions in order to achieve a technically and economically optimized solution with maximum reliability and service life.

Pennekamp will be pleased to support you in selecting the optimal wire mesh belt design for your specific application and operating conditions.

Model Key



C = Diameter of crossbar



The specification of a flat wire mesh belt is given as follows:

- 3,0 x 1,5 / 3,1 / 8,4 – 12,0

- A x B / C / D - E

A = Width of flat wire

B = Height of flat wire

C = Diameter of crossbar

D = Distance between spirals

E = Distance between crossbars

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