

# 남일벨트시스템

하바지트(Habasit) 제품 카탈로그

## 식품 단백질 가공 산업 벨트

### 제품 개요

대두·육류대체·유청 등 단백질 식품 가공 공정에 특화된 컨베이어 벨트 솔루션입니다.

### 주요 특징

- 단백질 식품 가공 공정 전용
- 습식·건식 공정 모두 대응
- 내가수분해성·내화학성 우수
- 위생 설계 - HACCP 대응

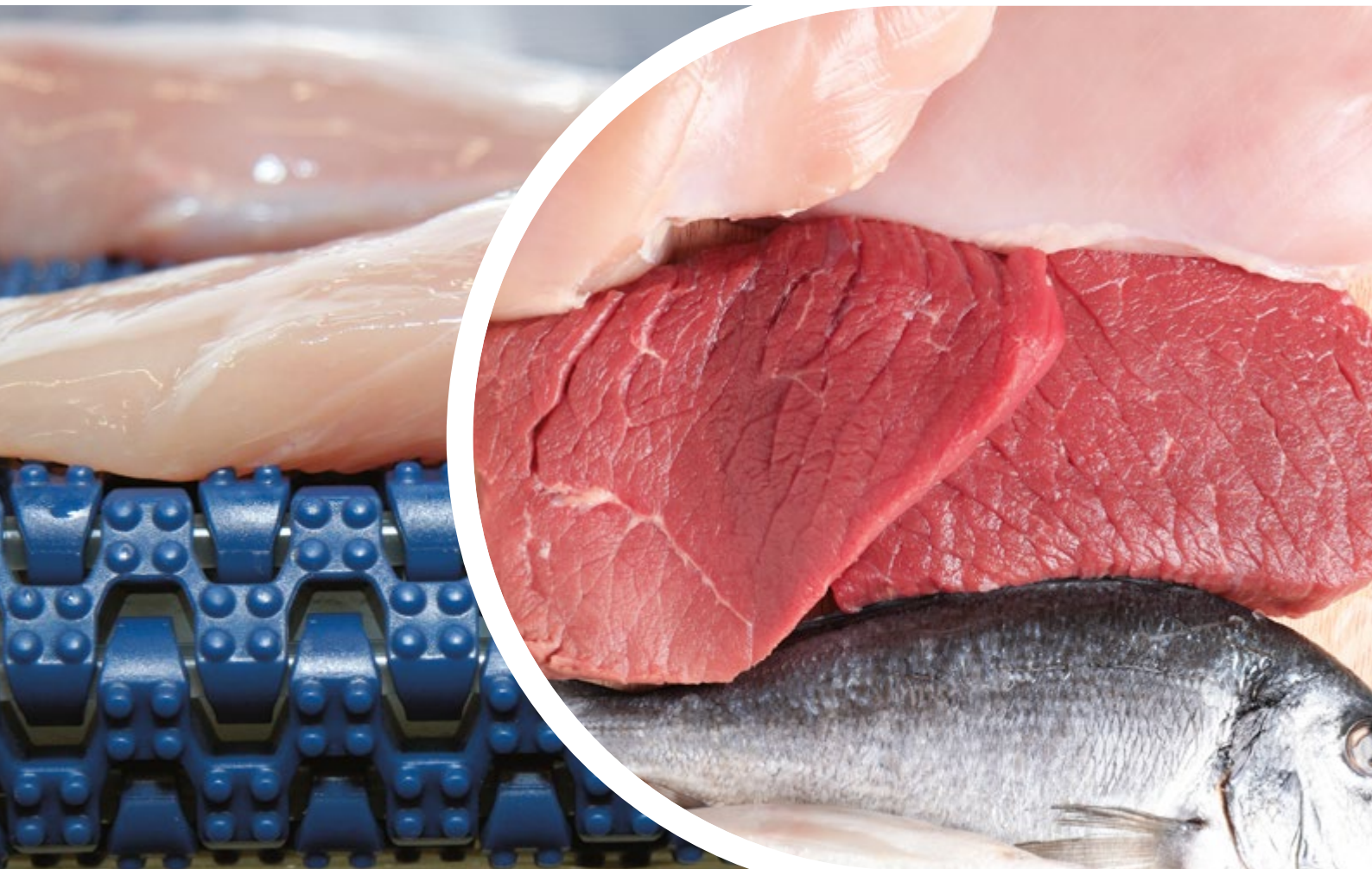
남일벨트시스템 (Namil Belt System) | 하바지트(Habasit) 공식 파트너

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# Food Protein Processing Industry

Innovative and food safe hygienic  
belting solutions to help feed the world



# Introduction

Industrial food production, especially sensitive processes in the animal protein processing industry, requires advanced technologies and equipment to cope with today's major challenges: optimizing efficiency, reducing downtime, and producing higher yields, improved hygiene performance, and full compliance with food legislation requirements. Meeting these challenges relies on enhanced cleaning efficiency and sanitation practices within food processing plants – all with the ultimate aim of improving hygienic standards and providing reliably safe food.

## Habasit delivers innovative and hygienic belting solutions to support the food industry

Whether you are a machine manufacturer for the protein industry, or a food processor, Habasit has the industry-leading experience and expertise to meet your application needs in every area of food processing.

We deliver the optimal belting solution for every application need, no matter how challenging, with fabric based belts, plastic modular belts, monolithic belts, round belts, food contact timing belts, and other. You need solutions that can withstand the rigors of production while also providing a safe and hygienic environment for food handling. Our belts are reliably durable and capable of withstanding even aggressive and frequent cleaning and sanitization.



### Food safety

- Hygienic innovation
- Durable design
- Regulatory compliance



### Yield optimization

- Less downtime
- Reduced labor
- Fewer replacements



### Sustainability

- Less water
- Fewer chemicals
- Reduced sewage treatment

Our aim is to contribute to **Food Safety**, maximize **Yield Optimization**,

and support the **Sustainability** goals of food processors worldwide

# Food Safety

Food safety is at the heart of the food processing industry; it is essential for the health and well-being of consumers, and to protect the food industry's reputation as a whole. The safety of food products is a major concern for regulators and consumers alike. This brochure explores the importance of food safety in the protein food processing industry, highlights the challenges the industry faces in maintaining food safety, and outlines the solutions developed by Habasit to meet these.

## Food safety challenges in the protein processing industry

Processed food can continuously be exposed to cross-contamination originating from contact with biofilm, which grows on the surfaces of tools and production equipment. Biofilms contain colonies of fungi, molds, bacteria and other microorganisms harmful to health, or significantly reduce fresh food's shelf life. Intensive and frequent sanitation processes are required to remove contaminants from equipment and conveyor belts.

## Current sanitation practices

Many animal protein food processors use sanitation practices today that:

- Result in high labor costs
- Consume large quantities of fresh water
- Use costly and non-environmentally friendly cleaning agents
- Require expensive water sewage treatment
- Lead to frequent downtime for cleaning

Habasit has set the standard for hygienic and innovative belting solutions in the animal protein food processing industry for decades.

Our success in ensuring food safety is based on three pillars:

- Hygienic innovation
- Durable design
- Regulatory compliance



A line is typically down for 1 to 4 hours each time a belt needs repair or replacement

*Habasit estimation*



47% of product recalls are due to microbiological contamination

*<http://fortune.com/food-contamination/>*



All costs considered, 1 hour of downtime can cost anywhere between \$10k-100k depending on plant size

*<https://www.mckinsey.com/industries/advanced-electronics/our-insights/whats-ahead-for-food-processing-and-handling>*



The average direct cost of a recall to a food company is \$10M

*<https://www.foodsafetymagazine.com/signature-series/recall-the-food-industrys-biggest-threat-to-profitability>*

# Food safety

# Hygienic innovation

Processing and conveyor belts are always in direct contact with the food conveyed. To meet the challenges this poses, Habasit has developed multiple innovative, award-winning belting solutions for the protein food industry.

The most recent additions to Habasit's hygienic innovation portfolio include:

- Super HyCLEAN®
- Hygienic plug and play CIP cleaning in place unit
- Saniclip – cleaning made easy
- Hygienic monolithic belting solutions

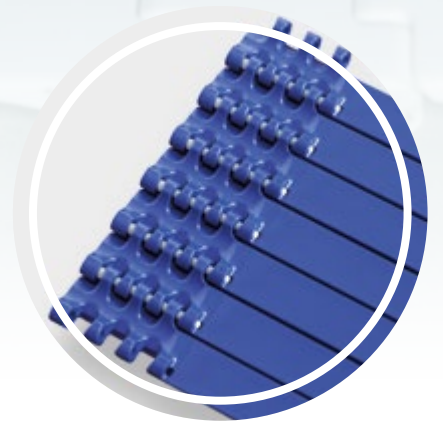
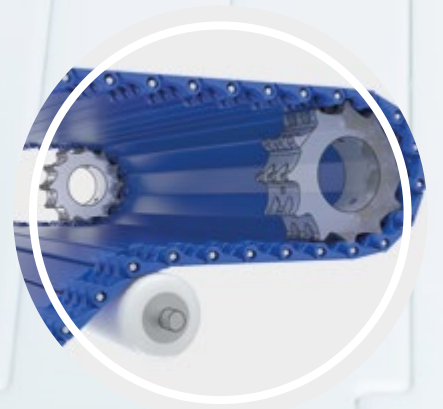
## Super HyCLEAN®

Super HyCLEAN is a brand new concept added to the HabasitLINK® plastic modular belting range.

Super HyCLEAN products are designed for applications where the highest hygienic standards are required, with a special focus on poultry and fish processing.

The innovative hygienic design reduces the deposit of organic debris while at the same time allowing quick, easy, and efficient cleaning operations, thus reducing overall sanitation costs and the risk of product cross-contamination.

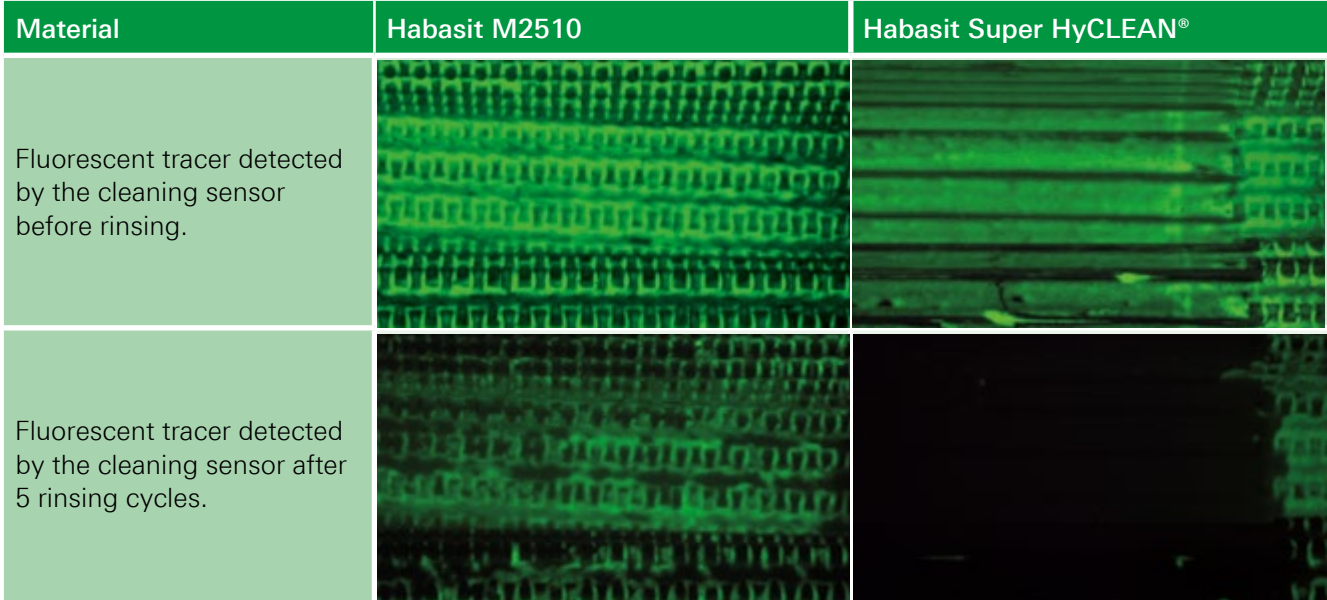
Hinges and rods have been reduced by 80% compared to a traditional modular belt (610 mm/24" width), with flat surfaces and minimal cavities on the rear of the belt.



### Independent testing

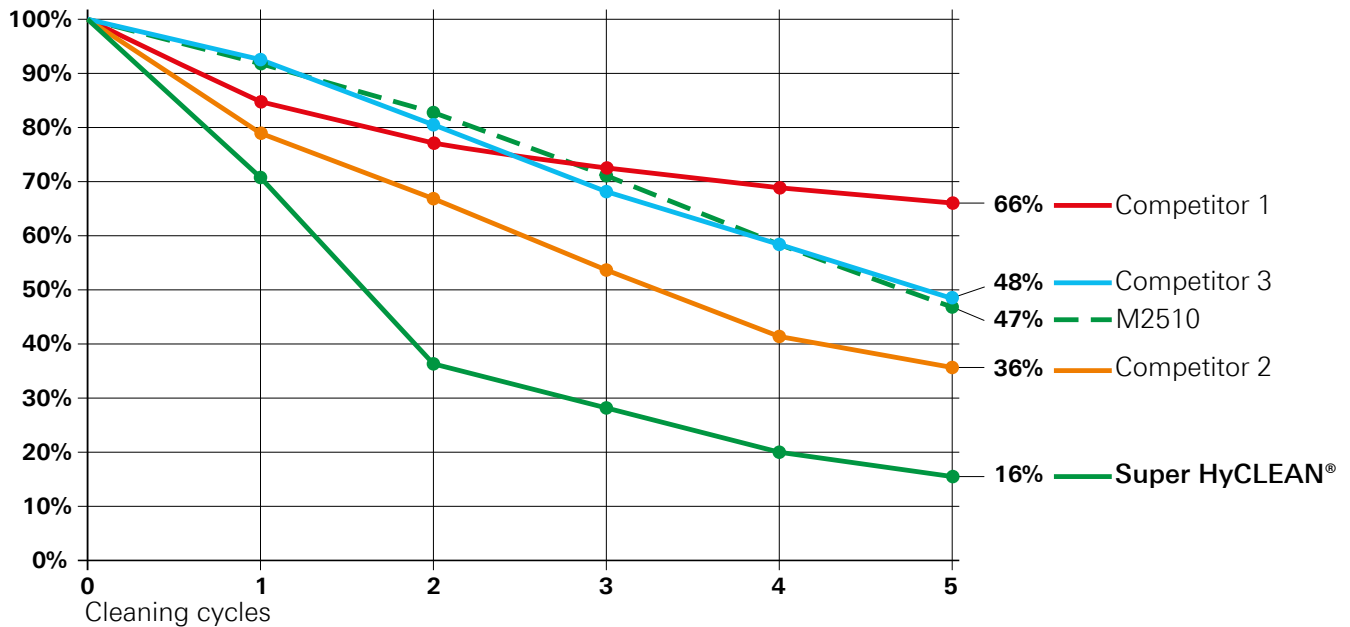
Extensive independent cleaning tests have demonstrated that Super HyCLEAN traps far less debris than any other tested belt. The graph below shows the results of tests using the same cleaning resources after five cleaning cycles.

Super HyCLEAN's exceptional hygienic performance results in at least 50% less cleaning time and use of resources than any other modular belt currently on the market.



The Super HyCLEAN® belt traps less soil than all the other tested belts. With the same cleaning resources, after 5 rinsing cycles, the remaining soil on the Super HyCLEAN® belt is between 2.2 to 4.1 times lower than the residual soil on the other tested belts.

Residual soil after 5 cleaning cycles



## Benefits of using the innovative Super HyCLEAN solution:

### Improved food safety



Super HyCLEAN's hygienic design, without pockets or corners that can trap contaminants, reduces the risk of bacterial colony proliferation, which is the main cause of product cross-contamination.

### Environmentally friendly



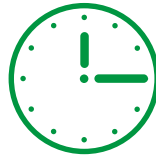
Through using less fresh water and cleaning agents, Super HyCLEAN saves natural resources.

### Lower sanitation costs



Flat surfaces and the minimized use of hinges and rods make cleaning operations quicker and more cost effective, with savings on water consumption, labor costs, and sewage treatment.

### Enhanced shelf life



Lower deposits of unhealthy residues and improved cleanability reduce food cross-contamination risks, which has an overall positive effect on limiting the product spoilage.

## Award-winning innovation

Super HyCLEAN has won several important awards in recent years, including:



### The International FoodTec Award

This initiative of DLG (Deutsche Landwirtschafts-Gesellschaft – the German Agricultural Society) in cooperation with its specialist partners, recognizes pioneering developments in terms of innovation, sustainability, and efficiency in the field of food technology.



### Food Processing Awards 2022

The Food Processing Awards acknowledge and reward engineering excellence and innovation within the UK food and beverage processing sector. Habasit won the "Hygiene and Food Safety" award that promotes innovation and hygienic excellence within the sector for its novel Super HyCLEAN belting solution.



### Meat Technology Forum – Poland

During the 2022 Forum Mięsnie Technologie Conference in Poland, Habasit received the "Product of the Year" award in the field of food safety for its innovative Super HyCLEAN belting solution.



## Hygienic plug-and-play CIP cleaning in place unit

This new, patent-pending device has been designed specifically for quick and easy installation and requires minimal mechanical adjustment for almost every existing conveyor frame in the food industry. The tool is suitable for spraying detergents, sanitizers, and foams, and facilitates the reliable, easy, and efficient removal of organic residues accumulated on processing and conveyor belts. With Habasit's new hygienic CIP unit, food processors benefit from significantly reduced manual cleaning operations.

The hygienic CIP unit is manufactured in stainless steel, and comprises two adjustable spray bars equipped with a set of high-efficiency spray nozzles. The upper bar can be fixed to most stainless steel conveyor frames with the use of just two hygienic brackets. All movable parts are 100% hygienically sealed.

### Patent-pending hygienic brackets ensure an easy three-step installation

- 01 Drill two holes in the frame
- 02 Slide the internal spray bar through the frame
- 03 Finetune the spray trajectory and fasten the bracket bolts

### Benefits of using the hygienic plug and play CIP unit

- Reduced water usage
- Lower consumption of cleaning agents
- Less cleaning time
- Reliable cleaning procedure





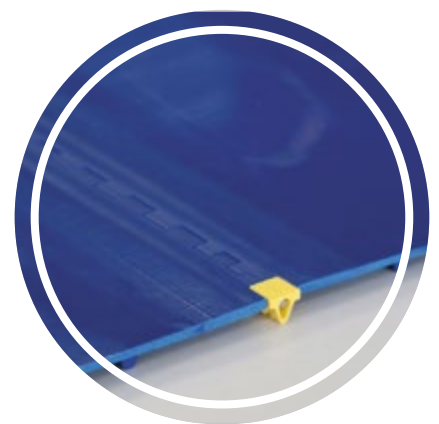
## Saniclip – cleaning made easy

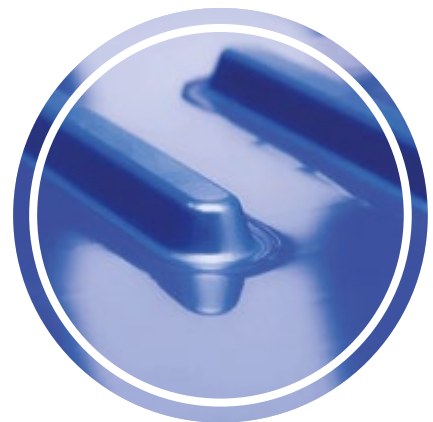
Saniclip is an innovative, patented device for quick belt dis-assembly and easy belt sanitation. It allows simple rod removal in applications where frequent belt sanitation is required.

Saniclip rods can be manually extracted and reinstalled directly by line operators in a matter of seconds, without tooling. This innovative device enhances sanitation processes throughout the food industry, and improves the efficiency of maintenance procedures in a wide range of applications.

### Benefits of using Saniclip

- Extracted or installed in seconds
- No tools needed
- Skilled personnel not required
- Reduced downtime
- Easy removal and installation in wet/fatty environments





## Hygienic monolithic belting solutions for smooth, food-safe product handling

Habasit® Cleandrive aramid reinforced monolithic TPU conveyor belts are recognized for their safe and hygienic food processing performance. Their significant advantages include a uniform surface without sink marks, and embedded cords that guarantee true belt length without creep.

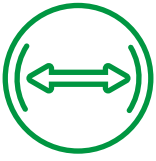
Habasit offers a choice of positive drive, friction drive, and lug drive solutions to meet the needs of different applications in the protein food industry.

### **No continuous stretch**

Habasit Cleandrive belts have fully embedded aramid reinforcement cords, resulting in minimized initial elongation and no continuous stretch. This makes it possible to convey food stuffs in a longer length and with higher loads, without need of additional difficult to clean shoes or limiters, used to force belt sprocket engagement, frequently offered on the market.

## Benefits of using Habasit's full range of hygienic monolithic solutions

### Longer conveyors



Fully enclosed aramid cords make it possible to engineer long conveyors and prevent multiple product transfers. Still need a transfer? Habasit Cleandrive offers the smallest pulley diameters.

### Easy to clean, scraper-friendly



The completely even surface, free of depressions and sink marks, facilitates a scraper-friendly solution, since all residues can be safely removed by the scraper. This maximizes yield, reduces the risk of cross-contamination, and makes the belt easier to clean.

### Fewer unplanned stops



The aramid-reinforced design guarantees reliable sprocket engagement and dimensional stability without the risk of fraying.

### Hygienic design



The smooth, rounded shapes in the Cleandrive positive drive range make it easy to remove foodstuff residues – even from the back side of the belt.

### High Elastic Monolithic Belts for check weighing and slicer infeed conveyors

Monolithic elastic belts are made of durable and proven thermoplastic polyurethane (TPU) without fabric reinforcement, providing highly elastic properties which make installation and tensioning easy and eliminate the need for tensioning devices.

The benefits of Habasit's monolithic elastic belts:



- Easy to install and tension
- High abrasion resistance
- Exceptional chemical resistance
- Flexibility over a wide range of temperatures
- No wicking, reducing the risk of contamination

# Food safety

# Durable design

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At Habasit, we are dedicated to supporting you throughout your entire process, from concept and planning, to the design, installation, and maintenance of new and retrofit belting systems. Every product developed by Habasit over its 75-year history has been thoroughly tested in lab, field, and using state-of-the-art simulation techniques.

Our SeleCalc belt selection and calculation programs, created by the Habasit application engineering team, help you to evaluate your application needs, select exactly the right belting solution, and create the optimal conveyor design.

## Design methodology

The finite element method is a numerical technique for solving complex engineering problems. It is widely used in the design and analysis of engineering systems. At Habasit, we use it to stress-test and thoroughly analyze our innovations prior to releasing them to market. Our ultimate aim: to keep your processes in motion.

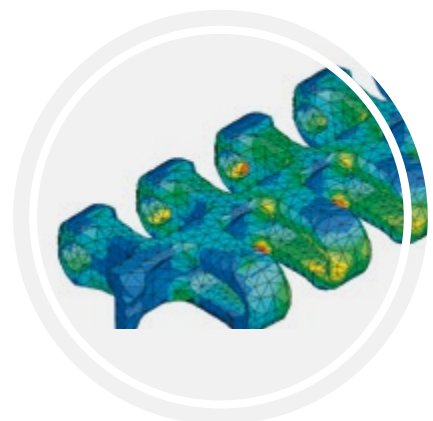
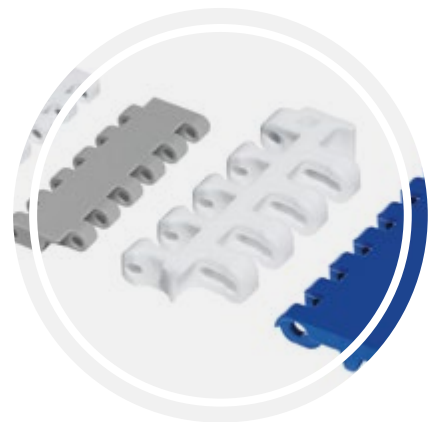
## Designed to last

Drawing on our vast portfolio, our industry specialists always find the best solution for your application. You get what you need, not what we have. As your expert partner for hygienic, food-safe belting solutions, you receive reliable, long-lifetime solutions, customized to your exact needs.

## Metal and X-ray detectable materials

We know that product contamination due to foreign bodies in the production flow can seriously affect not only food safety, but also the producer's brand and reputation.

External objects, unexpected mechanical accidents, and strong impacts along the line can introduce or break off small pieces that are difficult to detect within the production flow. While all our belting is made to last, accidents can still happen. Which is why we offer a full range of metal and X-ray detectable materials for our product ranges, to make doubly sure your process is safe. Belt elements are easily detected by inspection machines just like other materials or high-density contaminants, such as metal, bones, and glass.




# Food safety

# Regulatory compliance



## Up to date on regulations worldwide

Regulations are always evolving, so our regulatory specialists continuously gather and share information about worldwide regulations. Choosing the right conveyor belt type and material is crucial for coping with these challenges. Food processors and manufacturers rely on Habasit to comply with food contact regulations in line with EU and FDA rules. Habasit provides a Declaration of Compliance for all our food contact belts. In the declaration, one can find the right operating condition of use for food contact belts e.g. food category, temperature and time.



### Halal certification

Halal food certification for industrial components is becoming increasingly important for businesses needing to ensure that their products comply with Islamic dietary laws. A selection of Habasit food belts complies with this standard.



### EHEDG membership

EHEDG is the leading source of hygienic design and engineering expertise within the food industry. The goals of EHEDG are to raise awareness of hygienic design and engineering, develop guidance and solutions, provide a platform to promote expertise, and facilitate networking across the world.



Our dedicated belting solutions aim to support the highest standards of hygienic equipment design. Habasit has been member of the EHEDG Hygienic Design Working Group for many years.

# Yield optimization

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Yield improvement is essential to remaining competitive and maximizing profitability. By improving yield, companies can increase their output, reduce costs, and improve their overall efficiency. This can lead to greater sales, higher margins, and higher profits. .

Specifically in the food industry, it is also important to make efficient use of resources. With the growing demand for processed food due to urbanization and rising living standards, there are also far more mouths to feed.

Food processing operations are complex, and use highly automated processing equipment. With our dedicated solutions designed for yield optimization, Habasit helps customers to:

#### **Increase product throughput by**

- Reducing downtime
- Lowering labor dependency

#### **Extend belt lifetime**

- Reducing the number of replacements needed

Habasit's continuous investment in product development creates innovative belting solutions that significantly increase our customers' production yields.



### Less downtime



Our belting solutions aim to reduce your downtime, increase your line efficiency, and therefore lower your total cost of ownership. Less downtime is also achieved by reducing cleaning time, resulting in more production hours and higher production efficiency. Less cleaning time also uses fewer resources, like water and cleaning agents, contributing to more efficient food production and greater environmental sustainability.

### Reduced labor



By switching to planned rather than reactive maintenance, labor dependency can be reduced, and there is less pressure on technical staff. Reduced cleaning time - of up to 50% - also lowers labor dependency, leading to measurably positive impacts on staff scheduling and costs.

### Fewer replacements



Fewer accidents lead to less downtime. Habasit focus on the total cost of ownership ensures that your process runs smoothly. Even in challenging environments, our belting solutions deliver consistently excellent performance and long belt lifetimes, which in turn mean fewer belt replacements.

## WHI Wear, Hydrolysis, and Impact resistant material

The food industry requires highly effective cleaning and sanitation to guarantee its demanding food standards. When standard materials cannot cope with aggressive cleaning agents, WHI materials are often the answer.

Habasit's WHI material has got an enhanced resistance against the most common cleaning agents used in the food industry. It also is more resistant against hydrolysis and abrasion. These properties make WHI a good alternative when POM fails due to chemical attack by detergents.



40% less wear



Less unexpected  
downtime



3x the impact  
resistance



70% lower  
scratch depth



## Benefits of using Habasit's WHI material

### Less unexpected downtime



Improved toughness due to impact and wear resistance helps to extend belt lifetime and support production yield.

### More efficient cleaning



Belts can better cope with aggressive cleaning and sanitation protocols, and are easier to clean due to improved chemical and hydrolysis resistance.

### Lower risk of product contamination



Higher resistance to damage from impact or wear means the belt material does not break away and enter the product, resulting in less risk of belt breakage and product contamination

### Reduced cost of ownership



Less unexpected downtime, more efficient cleaning, and less risk of foreign object contamination all help to reduce the overall cost of ownership.

## PA+IM impact resistant polyamide (Nylon)

This extremely tough thermoplastic material offers good strength and fatigue resistance, making it suitable for heavy conveying applications with very high impacts. The belt properties and dimensions change with moisture absorption. Whenever you need an extreme resistance to impacts PA+IM is the leading material of choice.

# Sustainability

Sustainability has a key position in many food companies' strategies, and its importance to our future cannot be understated.

As the global population continues to grow and resources become increasingly scarce, sustainability is an essential way to ensure food availability for generations to come. It is our task to use resources responsibly and take measures to reduce waste and conserve energy.

How much water does your food processing plant use?

High food safety depends on effective cleaning and sanitizing, which demands a lot of water. A poultry plant can easily use around 7 liters of water per processed broiler.



Water used for scalding, cooling, cleaning, and sanitation can add up to hundreds of thousands of liters a week. At Habasit, we have ways to help you reduce this.

### Less water



In recent years, the world has finally woken up to the looming water crisis. As population growth and climate change continue to put a strain on water resources, the future of water availability is increasingly uncertain. Saving water is essential in animal protein food processing plants for several reasons. Not only does it help conserve an important resource, reduce costs, and lower environmental impact, it also helps to reduce the risk of spreading contamination.

### Fewer chemicals



The use of chemicals in food processing plants has become increasingly common as companies look for ways to make food more shelf-stable, reduce spoilage, and increase production. However, the growing use of chemicals can have serious consequences for both human health and the environment.

### Reduced sewage treatment




Reducing water usage during cleaning and sanitation also lowers the amount of dirty water processed by the water sewage plant. This results in reduced costing and lowers energy consumption.

Independent testing of Habasit's hygienic innovation portfolio showed a 50% reduction in belt sanitation time. Our belts' flat surfaces and minimized use of hinges and rods make cleaning operations quicker and more cost-effective, leading to lower water consumption, as well as to savings on labor costs and sewage treatment.



# Our services

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Our commitment to our customers' success is what drives our continuous innovation and product and service improvements. We combine engineering expertise with dedication to reliability, to create lasting value for our customers.

### **Global leadership, local service**

Habasit is your local partner with global reach. With 30 affiliated companies, each with its own inventory, fabrication, assembly, and service facilities, plus our worldwide network of partners, we react quickly and expertly to meet your most complex installation challenges.

### **Comprehensive technical support**

From belt selection to design assistance. Extensive knowledge of our customers' processes lets us guide you from application analysis to selecting the optimal solution. We offer online calculation and belt selection tools, as well as on-site engineering assistance and equipment design, to make sure you get the best solution.

### **Process optimization and everyday efficiency**

Innovation comes from understanding our customers' daily challenges. Habasit is more than a belting company. Our experts can provide belt condition monitoring, regular inspections, analysis and surveys at your sites, to keep your lines running smoothly and fully optimize your equipment and production processes.

### **Sharing knowledge and making business easy**

Habasit offers training programs and support tools to ensure optimal use of our products, with training on fabrication, installation, assembly, maintenance and belt repair either at a Habasit site or your own location. Orders, shipping and tracking can be managed via our Customer Care team, or directly online.

### **Committed to innovation beyond the obvious**

Because our customers' challenges and needs are always changing, we are constantly investing in the research and development of new products and solutions not only for today, but also for tomorrow.



# Contact us

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Habasit has subsidiaries, affiliated companies, representatives and service partners all around the world, dedicated to supporting you whenever and wherever you need us.



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