Tire Industry
Belts for Rubber Handling and Tire Manufacturing
Solution provider for the rubber and tire industry

Habasit is the full-range belting supplier and solution provider for the rubber and tire industry. With our product range you find belting solutions for handling of uncured rubber in the mixing room, in the extrusion section, and on cooling lines. Belting products must provide excellent temperature and chemical resistance, combined with superior release properties and highest abrasion resistance.

For tire building, tire cooling and tire handling we offer a wide range of belts, such as fabric-based conveyor and processing belts, HabasitLINK® plastic modular belts and timing belts.

Innovation is a key word at Habasit

Our extensive range of solutions enables our customers to choose the best product for their applications.

Competence and experience

Habasit application engineers, technicians and joining specialists are at your disposal to provide professional consulting, superb customer service and excellent support. Since its foundation in 1946, Habasit has proven its understanding of customer needs for more than 70 years. With a comprehensive global network, Habasit is able to respond to any request that you may have with nothing less than outstanding belting solutions of premium quality, tailored to your specific needs.
Process overview

1. Material preparation
2. Mixing
3. Dip tank
4. Batch off
5. Rubber sheet storage
6. Extrusion
7. Cooling line
8. Treadliner
9. Rubber rolls storage area
10. Calendering
11. Slitting line
12. Tire building
13. Green tire handling
14. Green tire storing
15. Trench conveyor
16. Inspection
17. Uniformity checker
18. Labeling
19. Storage and warehouse
Material preparation

For the material preparation process a non sticking, chemical resistant, standard room environment belt surface is needed.

Rubber mixing process

Infeed: Has similar properties to Material preparation. Often designed as an incline conveyor, where gripping characteristics are necessary. Outfeed: Outcoming raw rubber mix is hot, wet and sticky. Very good releasing properties and high temperature resistance is required as well as resistance to chemicals migrating from the rubber. Sometimes heavy load impacts from fallen rubber material.

Dip tank/Batch off – “wig-wag”

In the dip tank, rubber from the mixing process is coated with an anti-sticking agent to avoid the rubber layers sticking together when stored. The “wig-wag” process folds the continuous rubber material into stacks which can be easily stored on pallets. Chemical resistance against the separating powder is required.

Rubber extrusion

Infeed belts transfer the folded rubber mixes from the “wig-wag” into the extruder. Good incline properties and chemical resistance are needed. The outfeed from the extruder requires additional temperature resistance, and again, good releasing properties.
In the tire building process high accuracy is necessary. Also here timing belts are most common, but in some machines fabric belts are still in use. Often these belts use guiding profiles to avoid mistracking. Long lifetime is the goal due to the complexity of the replacement of the belts. A big advantage of Habasit timing belts with hinge joint which solves this issue.

The green tires are very sensitive to marking, scratches or deformation. It’s necessary to carry them smoothly and separate them while stored. Transfer lines equipped with fabric belts ensure a safe and smooth transfer. Mechanical fasteners are not possible because of potential marks. Roller top plastic modular belts can also be used. For storage, often cones made from fabric belt material with the fabric side up are used to ensure the green tire can be released easily after storing.

In the treadliner application there is a transfer conveyor where reliable chemical resistance and release properties are required. Much higher belt demand is in the non-conveying application of the roller. Here, belting material is wound together with the rubber in a coil. The belt is used to separate the rubber windings from each other. These coils are stored until transfer to the slitting lines.

In the slitting lines the main belt types are timing belts due to the precise positioning required. However, fabric belts are sometimes utilized. Releasing properties, as well as good cut resistance, and lateral stiffness to bear transversal forces are needed. The cut rubber sheets are to be used as individual components in the tire building machines.
Surface structure
A well-designed belt surface supports both the secure transport of the goods conveyed as well as the process where the belt is employed. Careful selection is essential in order to find the right belt for each conveying or processing application. The belt surface plays a key role in meeting each specific process step or function.

Introduction
Habasit’s conveyor belt selection includes hundreds of different belts to satisfy application requirements that range from straight-inclined or declined operations, to accumulation and diverters, to swan neck (Z) conveyors, and numerous other needs. We offer a wide variety of tension members and cover materials, as well as structural conveying- and running-side patterns to optimize your system’s performance.

Belt material
The materials and designs are selected to cope with a broad range of application requirements, including resistance to wear or chemical agents, and to high or low temperatures. Furthermore, they maintain excellent stress-strain behavior through the use of carefully selected tension members.

Belt design
Habasit conveyor and processing belts are generally made of different layers, with tensile strength provided by synthetic fabric plies. These fabrics are connected with layers of thermoplastic materials. The material, thickness and texture of the conveying side depend on the function of the belt.

Cover coatings are mainly made of thermoplastic materials like TPU, TPO, PVC, etc., and elastomer-like rubbers, PUR, etc. – or feature a fabric cover. The running side is usually a fabric, often impregnated with a thermoplastic material, or with special wear-resistant PUR that provides a low and constant coefficient of friction. There are also pulley-side fabrics that feature special low-noise running capabilities.

Attachments and profiles
Guides, cleats and side walls are the most common modifications applied to conveyor and processing belts. While V-shaped profiles are mostly attached to the running side as guides, various cleat designs can be welded or bonded to the conveying side to ensure proper transport either horizontally or on an incline. Side walls positioned close to the edges of the belt stop loose goods from falling off.

Surface structures (selection only)
Blank, smooth
Super mat finish
Longitudinal groove structure
Jink wave grip structure
Grip structure
Quadrillé structure
Waffle structure
Nonwoven structure
**HabaFLOW® Features and benefits**

### Nonwoven belts

**Key features**
- Impact- and wear-resistant
- Excellent abrasion resistance
- Superior edge fray resistance
- PES traction layer

**Your benefits**
- Durable and forgiving belt surface
- Reliable conveying properties
- Stable modulus of elasticity after running-in
- No marking of goods
- No retensioning required, no downtimes

### TPU-coated belts

**Key features**
- Longitudinal flexibility
- Excellent abrasion resistance
- Stable modulus of elasticity
- Permanently antistatic

**Your benefits**
- Can cope with small pulley diameter
- Reduced belt wear
- No retensioning
- No interference with electronic devices

### Rubber-coated belts

**Key features**
- Excellent release properties
- Longitudinal flexibility
- Permanently antistatic
- High-grip rubber surface available

**Your benefits**
- No sticking of rubber
- Copes with small pulley diameters
- No interference with electronic devices
- Constant coefficient of friction

### PVC-coated belts

**Key features**
- Wide range of surface types, structures and belt strengths available
- Stable modulus of elasticity after running-in
- Permanently antistatic belts available
- Simple and fast joining method (Flexproof)

**Your benefits**
- Selection of suitable belt for specific application
- No retensioning
- No interference with electronic devices
- Easy handling

- No downtime
- No maintenance
- No dust and dirt attraction
- Minimum equipment needed
HabaSYNC® Timing belts

Introduction
HabaSYNC® timing belts are used in linear movement and conveying applications requiring precise component positioning and product placement. Tailored timing belt solutions to meet your needs are produced in our state-of-the-art manufacturing facility and provided with high-quality materials specific for the application.

Habasit open-ended and truly endless timing belts are utilized in numerous industries, including the tire industry. They are the perfect choice for situations in which traditional belt designs will not provide ideal synchronization. Synchronization is achieved by meshing the belt teeth into a similar-pitch pulley. HabaSYNC® belts are available in metric and imperial pitches. Joining of the belts can be achieved with finger punch joining, mechanical clamps, or the Habasit patent-pending Hinge-Joint.

Materials
Timing belts within the HabaSYNC® line are made with thermoplastic polyurethane (TPU) and high-strength steel or aramide cords. The belts can be provided with various Shore A hardness. Timing belt covers are available in polyurethane, elastomere, or polyvinyl chloride. Special material covers can also be provided as required.

Attachments and modifications
Thermoplastic profiles to assist in conveying and product placement can be welded to the conveying side of the belt. Alternatively, mechanically mounted profiles are also offered and are available in thermoplastic, as well as multiple other materials, such as aluminium or UMHW. Mechanical profiles are custom made for your specific requirements. On the tooth side of the belt, weld-on guides are offered to support tracking for long narrow belt product conveying applications.

Application-specific modifications to both the back and tooth side of HabaSYNC® belts are possible to enhance performance. Examples of modifications would include profile grinding, surface grinding, lateral machining, hole punches and perforations.
HabaSYNC® Timing belts

Key features
- Polyamide on conveying and tooth sides of belt
- Low friction
- Low noise
- Slip during accumulation (conveying side)
- Good wear, hydrolysis, and chemical resistance
- Longer belt life
- Dimensional stability in hot and humid conditions
- Operate in harsh chemical environments
- Higher strength with no-joining HabaSYNC® flex belts
- Ability to handle high loads
- Feasible for power transmission application
- Full tensile member strength in an endless belt
- Wide range of covers, modifications, and attachments
- Ideal belt selection for specific applications
- Flexibility in design

HabaSYNC® Wide timing belts

The widest available solution on the market
Belts used in tire building machines very often are comprised of a number of narrow belts joined longitudinally, or belts running in parallel to achieve the desired width. With a wide timing belt, the need for longitudinal joining, which can be a failure-prone point, is eliminated, as is the need to install multiple parallel belts. Wide timing belts also improve positioning through precise alignment, which can be challenging for parallel belts. At 600 mm, HabaSYNC® wide timing belts offer the widest timing belt solution available in the market. This opens new possibilities for tire building productivity and the construction of equipment used in this application.

Quality tires are made on quality belts
The uncured rubber used in tire building applications requires materials with a high chemical resistance. HabaSYNC® wide timing belts are made using a special TPU material with high resistance to chemical agents, oil and grease. The material is also abrasion resistant, which increases belt lifetime and reduces the frequency of belt changeovers.

Up to 8 times faster belt replacement
Traditional belt joining methods provide a robust joint able to withstand the operating conditions of the tire building process. However, when traditionally joined belts need replacing, it can take up to 8 hours, and as many as 6 operators, resulting in high costs and lost productivity. HabaSYNC® wide timing belts can be joined with a hinge joint. This solution can reduce the replacement related downtime to less than an hour and requires only 2 operators for the change.

Tailored for your process requirements
With Habasit advanced fabrication capabilities you can customize the belt for a precise fit to your tire building line. From the joining method, including the hinge joint, to profiles, transversal or lateral grooves on the conveying or tooth side, various covers, and punched or water-jet cut holes and pockets, there are solutions for even the most demanding process needs.
Introduction
The modular belt is an aggregation of individual plastic modules made by high-precision injection molding and connected by lateral rods. Its robust design is optimized for efficient conveying and easy cleaning procedures.

Plastic modular belts eliminate the need for high-tension systems by positively engaging the sprocket with the running belt and maintaining proper belt tracking. They are widely used in many industries where their specific product features provide numerous benefits to our customers.

Materials
Habasit modular belts are available with a variety of state-of-the-art features, including special materials for: low friction, self-lubrication, chemical resistance, food-approved materials, as well as with antistatic, flame-retardant, magnetic detectable, electrically conductive, submersible, antimicrobial, special-impact, cut-resistant, high-temperature, and super high-temperature properties.

Sprockets and rods
Injection-molded sprockets have a specific open design that allows easy access for sanitation across the width of the conveyor shafts. Smooth lines and rounded corners eliminate virtually all areas where debris can be trapped. The full-width rods ensure belt connection and lateral stiffness. HabasitLINK® modular belts come with two rod solutions, depending on the belt type: Smart Fit and Snap Fit.

Accessories
Habasit offers a wide range of modular belt accessories including cleats, flights, scoops, side guards, finger transfer plates, and hold-down tabs for elevators with back bending (Z-conveyors), as well as HabiPLAST guide rails.

Key features

<table>
<thead>
<tr>
<th>Key features</th>
<th>Your benefits</th>
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<tbody>
<tr>
<td>• 90° Roller Top</td>
<td>• Tire rolls smoothly avoiding jams</td>
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<tr>
<td>• Simple smart-fit or snap-fit assembly</td>
<td>• No abrasion damage as with rubber belts</td>
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<tr>
<td>• Large variety of plastic materials and</td>
<td>• Easy installation</td>
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<tr>
<td>characteristics</td>
<td>• Can replace individual modules</td>
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<td>• Positive drive and tracking with</td>
<td>• No need for special tools</td>
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<tr>
<td>belt-sprocket engagement</td>
<td>• Optimum adaptation to needs of application</td>
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<td>• Fulfills critical property requirements</td>
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<td>(eg. antistatic, electrically conductive,</td>
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<td>high temp., etc.)</td>
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<td>• Straight running, even under influence of</td>
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<td>transversal forces</td>
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<td>• No need for tensioning devices</td>
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Surface structures (selection only)
- Flat Top
- Grip Top
- Raised Rib
- Flush Grid
- Roller Top
- Grip Top
- Raised Rib
## Application table

### HabaFLOW®
**Fabric-based conveyor belts**
- Nonwoven
- TPU-coated
- Rubber coated
- PVC coated
- PET fabric
- Impregnated

### HabasitLINK®
**Plastic modular belts**
- M5010 Flat Top
- M2470 Flat Top
- M2470 GripTop
- M2520 Flat Top
- M2533 Flat Grid
- M2585 Flat Grid
- M2670 Flat Top
- M5010 Grip Top
- M5131 Raised Rip
- M5182 Roller Top – 90º
- M5482 Roller Top
- F52 Smart Fit
- F54 Flat Wire
- WT10A04PP
- WT10A04PU
- T20S01UU
- T10S01UU

### HabasSYNC®
**Timing belts**
- Timing belts can be provided with hinge joint for applications where appropriate.

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<table>
<thead>
<tr>
<th>Application/Product range</th>
<th>HabaFLOW®</th>
<th>HabasitLINK®</th>
<th>HabasSYNC®</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Naanooan</td>
<td>TPU-coated</td>
<td>Rubber coated</td>
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<tr>
<td>Rubber mixing</td>
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<td>Material preparation</td>
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<td>Mixing infeed</td>
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<td>Mixing outfeed</td>
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<td>Batch-off</td>
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<td>Dip tank</td>
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<td>Batch-off outfeed</td>
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<tr>
<td>Wig washer</td>
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<td>Rubber extrusion</td>
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<td>Extrusion infeed</td>
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<td>Extrusion outfeed</td>
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<td>Cooling line incline</td>
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<td>Cooling line horizontal</td>
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<td>Calendering</td>
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<tr>
<td>Calendering infeed</td>
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<tr>
<td>Calendering outfeed</td>
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<td></td>
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<tr>
<td>Treadliner/Winding</td>
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<tr>
<td>Winding station infeed</td>
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<tr>
<td>Treadliner/Wind-up</td>
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<tr>
<td>Slitting/Cutting</td>
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<tr>
<td>Rubber sheet cutting</td>
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<tr>
<td>Tire building</td>
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<td>Tire building drum feed</td>
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<td>Green tire handling</td>
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<td>Green tire transport</td>
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<td>Green tire storage</td>
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<td>Curing-finished tire handling</td>
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<td>Trench conveyor</td>
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<td>Finished tire transport</td>
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<td>Finished tire transversal</td>
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<td>Finished tire incline/decline</td>
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<tr>
<td>Inspection/Test lines</td>
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<tr>
<td>Warehousing/Storage</td>
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<td>Tire transport horizontal</td>
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<td>Tire transport incline/decline</td>
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<td>Tire transport transversal</td>
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<td>Tire storage placement</td>
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<tr>
<td>Automated picking</td>
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*Timing belts can be provided with hinge joint for applications where appropriate.*
Committed to innovation
Because our customers’ belting challenges and needs are always changing, we consistently invest a substantial amount of labor and resources into the research and development of new products and solutions.

Certified for quality
We deliver the highest quality standards not only in our products and solutions, but also in our employees’ daily work processes. Habasit AG is certified according to ISO 9001:2015.

Worldwide leading product range
Habasit offers the largest selection of belting, conveying, processing and complementary products in the industry. Our response to any request is nothing less than a specific, tailor-made solution.

Comprehensive consulting and technical support
Profit from the best consulting and technical support in the lightweight belting industry. Local experts are always available to assist you with your belting needs. The Habasit team is proud to provide the highest level of support, together with top-quality products that have led the global market for decades.

Belt selection and calculation assistance
We are always glad to help you select the most suitable belt for any application for your convenience. We now also provide the free online tool ‘SeleCalc’ which allows you to easily make selections and calculations yourself. Simply register online at selecalc.habasit.com.

Fabrication, assembly and local installation services
As a full-service belting provider, we offer joining and assembly services either at our own locations or directly on your equipment.

Habasit has over 30 affiliates worldwide, each with its own inventory, fabrication, assembly and service facilities.

Together with representative offices and numerous qualified distributors, we can react quickly and efficiently to meet all your needs.

Customer training programs
To ensure the optimal performance and maximum lifespan of all our products, we offer training programs and various support tools. This includes proper procedures for fabrication, installation, assembly, maintenance and belt repair, all of which take place at a Habasit site or at your location.

Belt monitoring, inspections, analyses and process optimization proposals
We organize and handle belt maintenance, inspections, analyses and surveys at customers’ sites. Upon request, we are ready to develop optimization proposals to ensure you’re getting maximum value from your machinery and process output.

Design assistance for customized solutions
Habasit believes in building partnerships with our customers. Our engineering team will work closely with your engineers on joint design developments from initial design to final implementation. This expert service can be invaluable for projects involving new technologies or large-scale modifications and adaptations.