Nonwovens Industry
Conveyor and Processing Belts

Habasit – Solutions in motion
Contents

Solutions for the nonwovens industry 3
Drylaid nonwoven manufacturing process 4
HabaFLOW® fabric-based conveyor belts 6
HabaSYNC® timing belts 7
HabaDRIVE® power transmission belts 7
Crosslapper belt range 8
Belt selection by application 10
Services 11
Habasit worldwide 12

This disclaimer is made by and on behalf of Habasit and its affiliated companies, directors, employees, agents and contractors (hereinafter collectively “HABASIT”) with respect to the products referred to herein (the “Products”). SAFETY WARNINGS SHOULD BE READ CAREFULLY AND ANY RECOMMENDED SAFETY PRECAUTIONS BE FOLLOWED STRICTLY! Please refer to the Safety Warnings herein, in the Habasit catalogue as well as installation and operating manuals. All indications / information as to the application, use and performance of the Products are recommendations provided with due diligence and care, but no representations or warranties of any kind are made as to their completeness, accuracy or suitability for a particular purpose. The data provided herein are based on laboratory application with small-scale test equipment, running at standard conditions, and do not necessarily match product performance in industrial use. New knowledge and experience may lead to re-assessments and modifications within a short period of time and without prior notice. EXCEPT AS EXPLICITLY WARRANTED BY HABASIT, WHICH WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, THE PRODUCTS ARE PROVIDED “AS IS”. HABASIT DISCLAIMS ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE, ALL OF WHICH ARE HEREBY EXCLUDED TO THE EXTENT ALLOWED BY APPLICABLE LAW. BECAUSE CONDITIONS OF USE IN INDUSTRIAL APPLICATION ARE OUTSIDE OF HABASIT’S CONTROL, HABASIT DOES NOT ASSUME ANY LIABILITY CONCERNING THE SUITABILITY AND PROCESS ABILITY OF THE PRODUCTS, INCLUDING INDICATIONS ON PROCESS RESULTS AND OUTPUT.
As the world's leading manufacturer of conveying and processing belts, Habasit has developed a specific product range to meet the special requirements of the nonwovens industry.

**Satisfied customers**
Numerous leading international nonwovens machine manufacturers rely on Habasit conveying and processing belts and choose Habasit belts for their original equipment, including:

- Andritz Asselin-Thibeau S.A.S.
- Autefa Solutions GmbH
- Oskar Dilo Machines GmbH
- Trützschler GmbH & Co. KG
- Oerlikon Neumag
- Technoplants s.r.l.
- Qingdao Hongda Textile Machinery co. ltd.
- R&S Textile Machinery Inc.
- Zhengzhou Textile Machinery co. ltd.
Drylaid nonwoven manufacturing process

Preparation of fibers, conveying nonwovens

**Process**
- Bale opening
- Automatic blending
- Blending opener
- Carding

**Belts in use**
- Feeder belts
- Spiked lattice
- Screen or woven mesh belts
- Delivery belts
- Driving belts

**Crosslapper**

**Process**
- Crosslapping

![Diagram of Drylaid nonwoven manufacturing process]
Bonding of nonwovens

**Belts in use**
- Crosslapper belts
- Timing belts

**Process**
- Needle punching
- Spun lace system with hydroentanglement
- Accumulation
- Slitting
- Winding

**Belts in use**
- Feeder belts
- Delivery belts
- Processing belts
- Driving belts
- Positioning belts
**Belts for every application**

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 for the nonwoven industry are mainly made of thermoplastic materials like TPU (thermoplastic polyurethane), TPO (thermoplastic polyolefin) and PVC (polyvinyl chloride). 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.

**Surface structures**

Various surface structures and embossings are available as well as several thicknesses, suitable for every kind of bale opener, blending opener, automatic blending machine, feeder, and regular conveyor application in the bonding and finishing operation of the nonwoven.

A combination of these attributes makes it possible to customize the mechanical, chemical and electrostatic properties of each belt type.

**Examples of surface structures**

- Quadrille surface structure (Type Q)
- Inverted pyramid surface structure (Type W)
- Smooth structure

**Profiles**

For machines without belt tracking systems and with short center distances, longitudinal profiles are often used. Profiles made of PVC and polyurethane are available in various sizes and shapes.

**PVC conveyor belts**

- Two ply belts
- Non-sticky, hard surface
- Antistatic (electrostatic)
- Grip or blank, smooth surface
- Good release properties

**TPU conveyor belts**

- One- or two-ply belts
- Non-sticky, hard surface
- Antistatic (electrostatic)
- Grip or blank, smooth surface
- Needed width >3 m to match card width size
HabaSYNC® timing belts
HabaDRIVE® power transmission belts

HabaSYNC® timing belts for synchronization and positioning
HabaSYNC® timing belts support conveying and linear movement applications where optimum performance requires precise product placement and component positioning. High-quality materials coupled with our state-of-the-art manufacturing process and years of experience ensure innovative solutions tailored to your needs.

Timing belts in the nonwovens industry:
- Crosslapper carriage motion control and positioning: AT20, (AT10 for short and narrow machines)
- End line slitting, cutting, sewing, winding lines: T10, AT10
- Card driving, synchronization: Flex belts F AT10 or special fabricated belts

HabaDRIVE® power transmission belts
Habasit power transmission belts are tailor-made to suit specific industry and application needs or machine designs. We offer three different traction layer materials (Polyamide, Polyester and Aramide) used by the following belt concepts:
- Open drive
- Tangential drive
- Multiple pulley drive
- Live roller drive
- Double-sided power transmission

Power transmission belts in the nonwovens industry:
- Machine drive, especially carding, winder, slitter, needle punching
- Polyamide (A- or S-) type style, Polyester (TC- or TCF-) or Aramide (TF-)
Crosslapper belt range

The leading crosslapper belt manufacturer worldwide
Leading machine manufacturers in Germany, France, Italy, Japan, Korea, and China have chosen Habasit crosslapper belts as original equipment thanks to their excellent release properties to the fiber web, fast installation and going operational times, and excellent price/value ratio.

Premium line
Habasit premium crosslapper belts are known in the market for excellent quality and high reliability. The belts are available with widths up to 4,000 mm open prepared or made endless.

They offer an ideal combination of high transversal rigidity, extremely light weight and excellent high mechanical properties such as lateral stiffness, tracking, scratch-, and wear- resistance. Good dimensional stability combined with high conductivity make it possible to lay the nonwoven web perfectly and continuously in order to deliver a high-quality product.

Performance line
Habasit has developed performance crosslapper belts for general applications and as replacement belts on existing machines. The robust new crosslapper belt has been specially designed for a single motor drive crosslapper layout requiring a stiffer, thicker and stronger belt.

The new light PVC-coated belt NVT-510 has been specially designed for low-speed machines, and less demanding applications requiring a high-performance, reliable belt. The excellent top coating system ensures that our crosslapper belts combine high stability and a long service life.
### Crosslapper belts key features and benefits

#### Key features

<table>
<thead>
<tr>
<th><strong>Premium belts: ENB-6EE and ENT-6EE</strong></th>
<th><strong>Your benefits</strong></th>
</tr>
</thead>
</table>
| • High-grade TPU combined with chemical-resistant polymer special crosslinked surface coating | ➔ Chemically resistant  
➔ Non-brittle, ageing or micro cracking of belt surface  
➔ No tow formation of fibres  
➔ Long belt life  
➔ No hooking of fibers on belt surface  
➔ Uniform production of lightweight web (< 100 g/m²) possible |
| • High lateral stiffness | ➔ No folding of crosslapper belt  
➔ No damaging of the nonwoven web  
➔ No folding or over-throwing of nonwoven web  
➔ Perfect tracking  
➔ Trouble-free and reliable production  
➔ Reduced operating costs |
| • High longitudinal flexibility | ➔ Improved operating conditions for high-speed machines  
➔ Less tensioning required  
➔ Less energy consumption |
| • Highly conductive belt surface  
• Excellent release properties | ➔ Suitable for all man-made fibers  
➔ No sticking of fibers, no fiber fly  
➔ No blushing of web |
| • Homogenous Flexproof joining  
• Various types of joining possible | ➔ Identical properties, as flexible as the rest of the belt  
➔ Short downtimes |

#### Performance belt: ENB-9EE

<table>
<thead>
<tr>
<th><strong>Performance belt: ENB-9EE</strong></th>
<th><strong>Your benefits</strong></th>
</tr>
</thead>
</table>
| • High-grade TPU combined with chemical-resistant polymer surface coating | ➔ Good chemical resistance  
➔ Non-brittle, no ageing or micro cracking of belt surface  
➔ Long service life  
➔ No hooking of fibres on belt surface |
| • High lateral stiffness  
• Thick two-ply belt construction | ➔ No folding of crosslapper belt  
➔ No damaging or over-throwing of conveyed nonwoven web  
➔ Perfect tracking  
➔ Trouble-free and reliable production  
➔ Reduced operating costs |
| • Conductive belt surface  
• Excellent release properties | ➔ Suitable for all man-made fibers  
➔ No sticking of fibers to belt surface |
| • Homogenous Flexproof joining  
• Various types of joining possible | ➔ Identical properties, as flexible as the rest of the belt  
➔ Short downtimes |

#### Performance belt: NVT-510

<table>
<thead>
<tr>
<th><strong>Performance belt: NVT-510</strong></th>
<th><strong>Your benefits</strong></th>
</tr>
</thead>
</table>
| • PVC surface coating  
• Thin one-ply belt construction | ➔ Light belt  
➔ Reduced operating costs  
➔ Short take up, good tracking |
| • Good release properties | ➔ No sticking of fibers to belt surface |
| • Low noise running side | ➔ Low friction and noise-free running on any sliding bed |
| • Homogenous Flexproof joining  
• Various types of joining possible | ➔ Identical properties, as flexible as the rest of the belt  
➔ Short downtimes |
Belt selection by application

<table>
<thead>
<tr>
<th>Technical data</th>
<th>TPU belts</th>
<th>PVC belts</th>
<th>HabaSYNC® timing belts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (mm)</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Thickness (in.)</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Mass of belt (belt weight) kg/m²</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Mass of belt (belt weight) lbs./sq.ft</td>
<td>2.20</td>
<td>2.20</td>
<td>2.20</td>
</tr>
<tr>
<td>Tensile force for 1% elongation after relaxation (k₁₁% relaxed) per unit of width</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Tensile force for 1% elongation after relaxation (k₁₁% relaxed) per unit of width lbs./in.</td>
<td>0.90</td>
<td>0.90</td>
<td>0.90</td>
</tr>
<tr>
<td>Pulley diameter minimum without counter flexion (mm)</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Pulley diameter minimum without counter flexion (in.)</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
</tr>
</tbody>
</table>

Applications

| Machinery for preparing fibers | ● | ● |
| Blending and opening machines | ● ● ● ● ● ● ● ● ● ● ● ● ● |
| General cards and web conveying | ● ● ● ● ● ● ● ● ● ● ● ● |
| Crosslapper | ● ● ● |
| Needle machines | ● ● |
| Coating, drying machines | ● ● ● |
| Slitting and cutting machines | ● ● ● |

NA = Not applicable

Installation

Habasit provides tailor-made belts all around the world. They are either prepared for hot-pressing on site, or are already joined endless to the required dimensions.

Our simple and rapid Flexproof joining method uses up-to-date fitting equipment and allows on-site splicing to achieve reliable, high-quality belt joints. State-of-the-art fabrication tools support the preparation and splicing of the belt on every type of machine anywhere in the world.

Flexproof

Prepared ends

Hot-press splicing

Pressing device, open
Comprehensive services are central to Habasit’s belting solution approach.

As committed partners to our customers, we are dedicated to sharing our knowledge and to providing full support.

Comprehensive consulting and technical support
Habasit offers the best consulting and technical support on the belting market. Everything revolves around our customers and each affiliate has its own belting experts. The Habasit team is proud to provide the highest levels of support together with top-quality products that have been leaders on the global market for decades.

Assistance with belt selection and calculation
We will select and calculate the most suitable belt for your specific application. You also may do this yourself with our state-of-the-art Habasit selection and calculation program “SeleCalc”. To order this program free of charge, simply call your nearest Habasit partner or contact: info@habasit.com.

Fabrication, assembly and local installation services for quick reaction times
We make belts endless or assemble modular belts or chains, either at our own locations or on-site directly on your machine or system. Habasit operates over 30 affiliated companies worldwide, each with its own inventory, fabrication, assembly and service facilities. Together with our representative offices and numerous qualified distributors, we can react quickly, competently and reliably to satisfy all your demands.

Customer training programs
Habasit offers training programs and provides support tools to ensure optimal use of our products and to prolong their lifetimes. Training on fabrication, installation, assembly, maintenance and belt repair takes place at Habasit sites or at your location.

Belt monitoring, inspections, analyses and process optimization proposals
We organize and handle belt maintenance, inspections, analyses and surveys for your locations. On request we will also work with you to develop optimization proposals, for example, to achieve added value from the machinery or process output.

Design assistance for customized solutions
Habasit believes in partnership. Our engineering team will work closely with your engineers on joint design developments, preferably from a very early stage. We particularly recommend this for projects involving new technologies or large-scale modifications and adaptations.

For more details visit us on www.habasit.com
PROCESS ABILITY OF THE PRODUCTS, INCLUDING INDICATIONS ON PROCESS RESULTS AND OUTPUT.

OF HABASIT’S CONTROL, HABASIT DOES NOT ASSUME ANY LIABILITY CONCERNING THE SUITABILITY AND
ALLOWED BY APPLICABLE LAW. BECAUSE CONDITIONS OF USE IN INDUSTRIAL APPLICATION ARE OUTSIDE
COURSE OF DEALING, USAGE, OR TRADE PRACTICE, ALL OF WHICH ARE HEREBY EXCLUDED TO THE EXTENT
OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR ARISING FROM A
OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES
OTHER WARRANTIES, EXPRESS OR IMPLIED, THE PRODUCTS ARE PROVIDED “AS IS”. HABASIT DISCLAIMS ALL
EXCEPT AS EXPLICITLY WARRANTED BY HABASIT, WHICH WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL
other warranties, express or implied, the products are provided “as is”. Habasit disclaims all
other warranties, either express or implied, including, but not limited to, implied warranties
of merchantability, fitness for a particular purpose, non-infringement, or arising from a
course of dealing, usage, or trade practice, all of which are hereby excluded to the extent
allowed by applicable law. because conditions of use in industrial application are outside
of habasit’s control, habasit does not assume any liability concerning the suitability and
process ability of the products, including indications on process results and output.