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## **Böttcher**Tec

Roller Solutions for the Textiles Industry



Systems ►► Industry

# EXPERIENCE + KNOW-HOW



## Our Commitment, your Advantage:

### ■ Highly developed Products

**BöttcherTec** Roller covering materials in rubber and polyurethane, specially designed for textiles production, hardness and temperature resistance tuned to the specific requirements of each process step. Outstanding quality for stable processes, long roller life and minimum downtime.

### ■ Global Presence

Central rubber compounding in our highly automated mixing facility ensures identical quality and material characteristics wherever in the world you are. Local application on rollers in our 20 roller manufacturing plants provides local service and short lead times.

### ■ Complete, systematic Solutions

Individual support and material selection on site by our technical support staff. Laboratory tests reinforce the selection and identify any compatibility issues before they have a chance to negatively impact your process. Fast and cost-effective service all over the world through our manufacturing network – Böttcher is always close to you!



### ■ In-depth Application Competence

For decades, Böttcher has been working with customers at all levels in the production and processing of textiles to fine-tune the performance of roller materials to fulfill the ever-increasing demands of the industry. Unrivalled technological capabilities and laboratory equipment make it possible to develop and produce materials which transcend the limitations of conventional roller coverings.



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## Textiles: Fabric of the Modern World

Every day, in many, many ways, just about everyone on the planet wears, uses, sits or walks on or even entrusts their life to products made of textiles. From the moment we open the curtains in the morning and get dressed, from sitting in a car, train or plane to go to and from work, to slipping between the sheets at night – our lives would be very different without textiles. Behind these textile products lies a hugely complex process of growing, harvesting, extruding, spinning, weaving, printing, cutting and sewing and distributing the most diverse range of materials

imaginable. Driven by global need on the one hand and global competition on the other, the textile industry has one of the highest rates of productivity development among all industries. In the last 30 years, for example, the speed of weaving looms increased tenfold. In the same period, the market share of synthetic fibres has doubled to 70%, two thirds of their volume coming from China alone. The pressure on textile producers to innovate, rationalize and specialize has been intense and has led to a new, global structure in the textile industry. Today, apparel accounts for less than

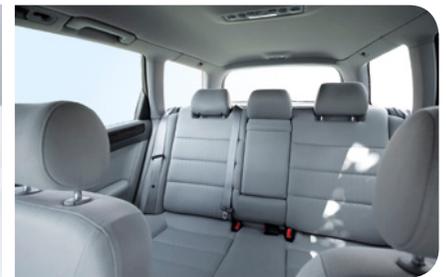
10% of total textile production in Europe and North America, as producers – besides developing and building textile manufacturing and processing machinery – have moved towards the fields of home and floor fabrics and specialized technical fabric materials. To help them achieve these diverse goals, textile manufacturers require suppliers as committed to their business as they are themselves. Modern, high-speed processes require materials which have kept pace with technology, specially designed to fulfill the specific requirements of the textiles industry.



© LION V-Force® Protective Gear,  
Manufacturer: LHD Group GmbH



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## Böttcher: Global Partner of the Textiles Industry

In 20 factories all over the world, Böttcher produces roller coverings designed to satisfy the most demanding requirements of textiles producers and converters. Producing rubber

compounds in the central mixing facility of Germany guarantees consistent quality worldwide, while the application of these compounds locally ensures fast and efficient service. With in-depth

process knowledge and experience in all stages of textiles production, Böttcher offers you best in class compounds to improve your process efficiency and product quality.

## Roller Coverings: Tailor-made for each Process Step

As the world's largest roller manufacturer, Böttcher offers a comprehensive range of products to support you at each stage in textiles manufacturing, whichever field you specialize in. From spinning the fibres through washing, weaving and knitting processes right up to dyeing and printing, Böttcher offers specially developed roller coverings and rubber covered sleeves which excel at what they do. Our expertise in elastomer

materials supports your know-how in textile processing and enables you to get the best out of your machines and production lines. Böttcher roller coverings are designed and formulated to retain their hardness, dimensions and elastic properties, whether they are operating in a wet or dry process, an acid or alkaline environment and whatever temperatures they are exposed to.



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## Making the most of your Product: Printing Sleeves

Flexographic printing is a particular specialty of the Böttcher Group. For decades, Böttcher has manufactured and supplied more graphic rollers than any other roller manufacturer.

This applies to all fields of printing, and to none more than Flexography. With rubber coverings specially formulated for Direct Laser Engraving (DLE), Böttcher textile sleeves give

you not only enhanced print quality, but reduced make-ready times and much greater longevity than conventional systems.

### Chemical Resistance to Process Chemicals

- Textile manufacturing involves a wide range of chemicals: acid and alkaline solutions for processes such as sizing or mercerising, along with a variety of dyes and inks for decorating the fabric.
- At each stage of the process involving exposure of the rollers to these chemicals, the rubber has to be formulated to withstand any negative effects such as swell or shrinkage, premature hardening or breaking up.
- Böttcher has state of the art laboratory facilities to simulate all chemical influences in the textile manufacturing process and ensure that the roller coverings you receive will serve a long and productive life.

### Mechanical Resistance to Wear and Tear

- Whether in drawing or squeezing applications, the rollers coverings are subjected to pressure and friction from fibres and fabric webs. Good mechanical properties ensure that the roller surface stays smooth and even.
- Good cut and marking resistance also extends the roller's productive life.
- It is also important that the rollers have excellent elastic properties, enabling them to keep up with today's high-speed processes and machinery.

### Temperature Resistance for Consistency and Longevity

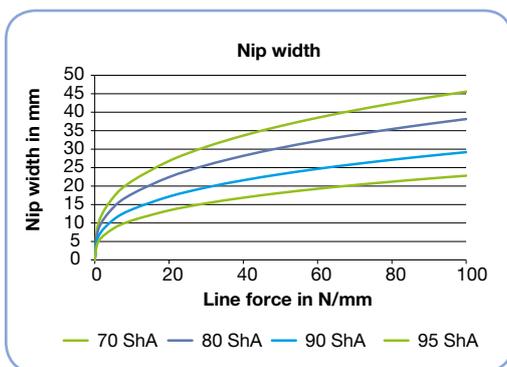
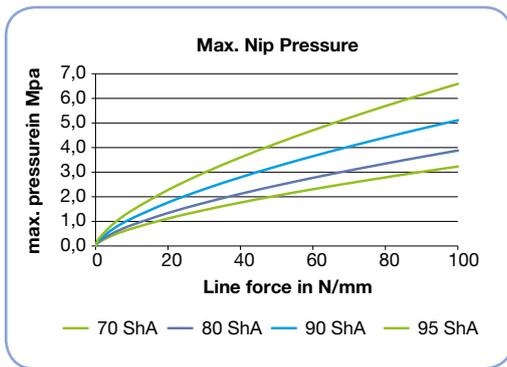
- At several points during the production process, the fabric (and with it the rollers) are subjected to high temperatures.
- Good temperature resistance of the rubber prevents premature scorching or breakdown and stabilizes the surface properties of the covering

## Set and forget: How Roller Quality makes your Life easier

You know your machines and processes better than anyone, we know our materials and their influence on the result. Putting our joint knowledge to work enables the selection of the best material for your roller needs. When conducting on-site trials or investigating problems, we will be right there at your side to support you

in finding the best possible solution. We are happy to analyze your process requirements and develop customized materials to deliver the results you need. We see ourselves as a "Productivity Provider": your rollers should simply do the job, day after day, week after week. Stable performance and a long life cycle

mean that in future you can concentrate more on your process and product quality, without being distracted by roller issues. That's what we mean when we say "Set and Forget": install, set and then concentrate on getting the best results from your process.



The effectiveness of squeezing units is largely determined by the forces in the roller contact nip. Besides the roller geometry and covering thickness, the roller setting and the mechanical and dynamic properties of the covering material are key factors. High nip pressures helps maximize the degree of dewatering and is achieved by a very narrow nip and hard rubber covering. But besides minimizing residual moisture content, it is also important to achieve an even result across the width of the web, in order to reduce the amount of energy required for drying and also to facilitate the absorption of

liquor in the next process steps. This means that the nip has to compensate for variations in the fabric web and also requires a certain dwell time in the nip. Both can be achieved by the elastic deformation of the roller covering in the nip, so that often softer roller covering materials are preferable, especially when handling knitted or woven fabrics. The two charts\* demonstrate the principles of nip force in the squeezing roller position. While in the first chart the dependence of maximum pressure on covering hardness and setting is shown, the second chart shows the influence of the nip width.

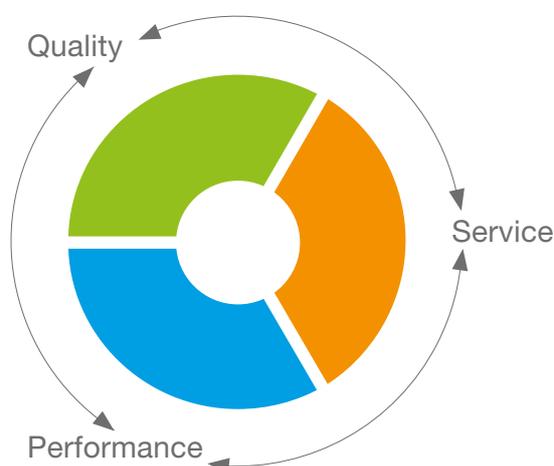
\* These examples include settings and parameters which go beyond those normally prevalent in textiles production. They serve purely to illustrate the principles and characteristics described above and should not be applied in practice.

## Rely on us for Quality, Service and Performance

**Böttcher quality** is not merely the result of meticulous production. It also requires a great deal of research and development. We test 3,000 new compounds for rollers every year, for example. Of those, the field is narrowed to 300. And only the 30 materials that meet our requirements without reservation eventually reach the market – so that you can be sure of working with the best possible solution at all times.

**Böttcher service** combines the experience gained over 280 years with state-of-the-art know-how and ambitious commitment. That gives you the assurance of having a reliable partner who knows his business and has his eye on future developments to be prepared for each new trend and challenge.

**Böttcher performance** has only one objective: to make you even more productive with our high-quality solutions. We make your concerns our concerns, so that your processes become even more reliable and your production more economical.



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