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Technical rubber  
and plastic products

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**IRIS**  
Certification

# WELCOME

We would like to introduce you to the new edition of our illustrated catalogue, which we hope will fulfill your curiosity and provide you with sufficient informations to estimate whether our collaboration can be of help to you.

We are at your complete disposal to listen to your queries and get to the bottom of them, in order to meet your requirements and help to realise your plans, within the fascinating field of elastic materials.

I wish you a good reading,

**Marco Favini**, CEO Rex Articoli Tecnici SA



# INTRODUCTION

## Rex Articoli Tecnici SA

**Rex Articoli Tecnici SA** is a family-run company based in Mendrisio, in the South of the Italian-speaking Switzerland. It deals in design, production, sale, and support of technical items made of elastic materials or the combining of elastic materials with rigid supports.

Specialist consultants will support the client from the conception up to the optimal realization of the product, making use of existing or newly conceived output techniques in a reasonable and inexpensive way. Rex Articoli Tecnici SA is continually engaged in research, in which the human contribution remains crucial for the proper relationship be-

tween technique and raw material, with special care for sustainability and the social setting. Technological capabilities, rationality and competence, employed in a modern operating context, enable the company to achieve both own and clients' goals, ensuring a valid, reliable, and economically competitive product.

The company avails itself of various external collaborations such as technical institutes, and promotes research initiatives with universities. Retraining courses for the staff periodically occur, in order to ensure a constant improvement in the firm's development. Rex Articoli Tecnici SA's quality insurance

system was attested according to the **ISO 9001** standards in 1990 and was the first Ticino-based company to obtain the certification in this part of Switzerland. It was also the first that receive the **IRIS validation** for supplying railway vehicle products in 2010.

The constant innovation of high technology equipments, on-going research along with a robust production capacity, and systematic process checks, all supported by a dynamic staff of collaborators, underlies the success of the company in both domestic and foreign markets.



# THE COMPANY

## A conscious evolution from 1935

Rex Articoli Tecnici SA was founded in **1935** by Ignazio Favini, a young chemist, originally from Ticino, whose grandfather had moved to German-speaking Switzerland in search of work.

The company started out by producing mainly cellulose-impregnated fabrics for the manufacture of protective caps, waxes, and varnishes for the footwear industry. Gradually the output of adhesives became its primary production field, which was initially based on resinous materials broken up in solvents, that were later replaced with elastomeric matter such as natural rubber and other synthetic elastic materials. The invention of the elastomer polychloroprene marked the starting point of several mixing processes in the production of glues for Neoprene-based adhesives.

Subsequently, with the introduction of these procedures, Rex Articoli Tecnici SA began to make compounds for the direct

vulcanisation on uppers of rubber soles, but the most important advancement for the company was the production of pre-finished rubber soles, that consistently speeded up the process of attachment to the upper, and thanks to this enhancement, this part could now be done without going through additional steps.

This was a real success, that **in the 50's** established the company as the leading rubber sole manufacturer in Switzerland: highly specialised soles were made exclusively for the big names in sports footwear; these soles had inserts that were vulcanised at the same time as the sole itself. This specific production method was expressly developed by the company, and to this day, is protected by international patents.

At the **end of the 60's**, the Swiss footwear industry faced strong foreign competition, which compelled it to shut down domestic productions or move

abroad. These circumstances led Rex Articoli Tecnici SA to focus on manufacture of rubber technical items.

In **1972**, a big fire destroyed more than two thirds of the Mendrisio-based plant. Rex Articoli Tecnici SA was rebuilt. All activities relating to adhesives and impregnations were abandoned and the firm exclusively focused on the output of technical products. The main sectors of implementation were now for the mechanic industries. The first rubber brake pads for bicycles were then put into production, and this area of activity quickly developed, giving rise to the successful series of Swissstop brake pads.

**In the 80's** the production of the first anti-vibration structures was undertaken for constructing ballast-free railway lines, later employed within high-speed railway as well as metropolitan lines. This sector constantly developed and was brought to completion with the addition

4

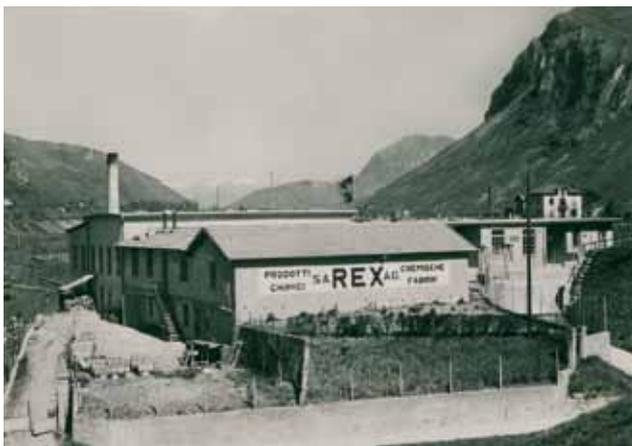


of a wide range of applications within the railway rolling stock branch. Rex Articoli Tecnici SA currently supplies with its components the world's leading manufacturers of locomotives and wagons.

For the company, **the end of the century** was marked by the introduction of the complete design of rubber products, plotted in direct collaboration with the user. Thanks to the diverse simulations and prototyping systems, the company is able to offer technical solutions to the cli-

ents, and to directly test out the physical and practical behaviours of the product, right in its own laboratory. Over the same term, Rex Articoli Tecnici SA began moulding items made of thermoplastic elastic matters, focusing on co-moulding processes of several materials, hence a specific department was established for this task.

- 1 In **1935**, Rex sets up business in the West of Mendrisio, inside an old sawmill. It produced impregnated fabrics, glues, and waxes for the footwear industry.
- 2 In the **50's**, the company began manufacturing rubber soles, which led to an important development for the company.
- 3 After the fire of **1972**, the firm was rebuilt and at the end of the 90's it focused especially on the output of rubber technical products for various sectors such as the mechanics and construction industry.
- 4 In the year **2000**, Rex Articoli Tecnici SA built a new production plant on the opposite side of the road, and in **2010** it took over several sites to the East of the plant, thus creating new possibilities for a future development.





# THE LABORATORY

## Study of materials and design of products

Rex Articoli Tecnici SA has always been committed to elaborating specific outcomes, with special attention for clients' requirements as well as for shape and purpose of the final product. In order to do this, the company has a team of **chemists** dedicated to identifying the most suitable materials for the final use. The latter are always internally produced on company's own mixing line or commissioned from large foreign com-

pound manufacturers, that create their product exclusively according to Rex Articoli Tecnici SA's specific formulas. Alongside of the team of chemists, one of designers deals with the development of mechanical parts. The company's technical office has an engineering workshop for constructing prototypes and carrying out repairs and modifications. The above mentioned staff have a **well-equipped laboratory** to carry out all kinds of phys-

ical and mechanical tests. In order to adequately execute the tests, Rex Articoli Tecnici also handles the construction of testing equipment, specifically created in collaboration with the client, or with the institutions that will have to approve the final outcome.

1

The **connection bellows** between the boogie of the locomotives and the carriage are subjected to a high level of stress. The laboratory simulations ensure the quality and durability of the product.

2

The **physical and mechanical laboratory** is well-equipped and enables nearly all tests related to the use of products made from elastic materials.

3

Rex Articoli Tecnici SA designs and constructs special machines for **practical braking tests** of brake pads and disc brake pads. The Swisstop production line has established itself as one of the world leader.

4

Special machines are adapted to carry out specific **deformation and long-term fatigue resistance tests**. The company owns special equipment for durability tests in the field of railway rolling stock.

7

2



3



4



# THE TECHNICAL OFFICE

## Design, development, and prototyping

Rex Articoli Tecnici SA attentively follows the making of the product right from its conception up until the final realization, availing itself of its technicians' wealth of experience in the elastomer sector. Diverse and innovative **simulation and prototyping methods** are used

during the process. The company produces the materials used internally, so that it's possible to provide very precise simulation programmers capable to obtain results fairly close to the **real-life application**. Ongoing collaborations with **university** institutions ensure an effi-

cient upgrade in newest technologies and a bracing cooperation with young, future professionals of the field. Evolution, improvement and monitoring of the materials, used in prototyping, allow to closely approach the conditions of a **serial production**.

1  
2

**The simulations** are carried out with special models that take the non-linear behaviour of elastic materials into account.

In the picture: a closing valve on a nozzle for making chocolate.

3  
5

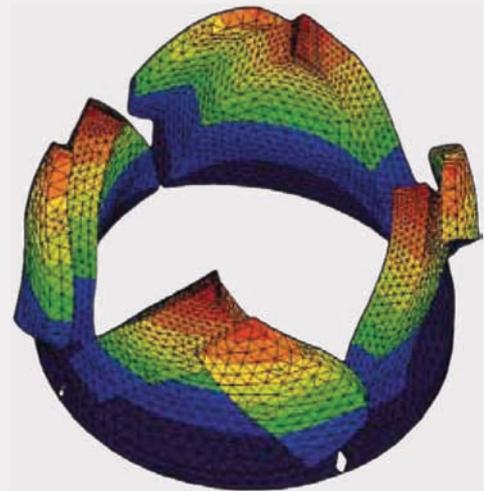
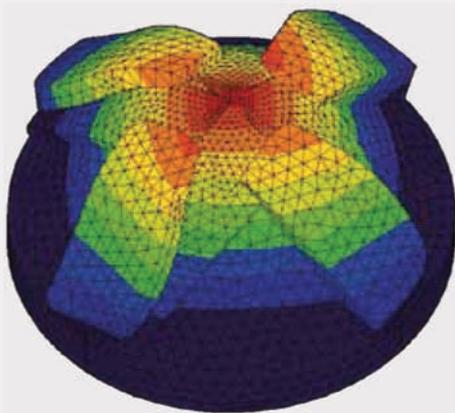
**The 3D design** makes it possible to directly move on, to realizing prototype models.

In the picture: a washing machine drain and a support for microphone batteries.

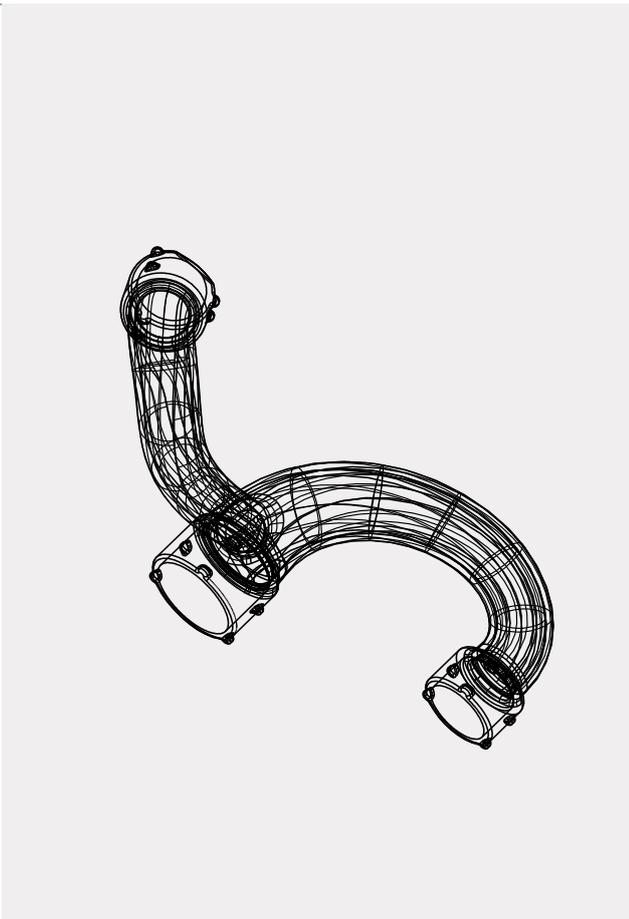
4  
6

Through **the models** is possible to practically test the usage of the designed object. The employed materials are elastics and have very similar properties to those of the final product

8



3

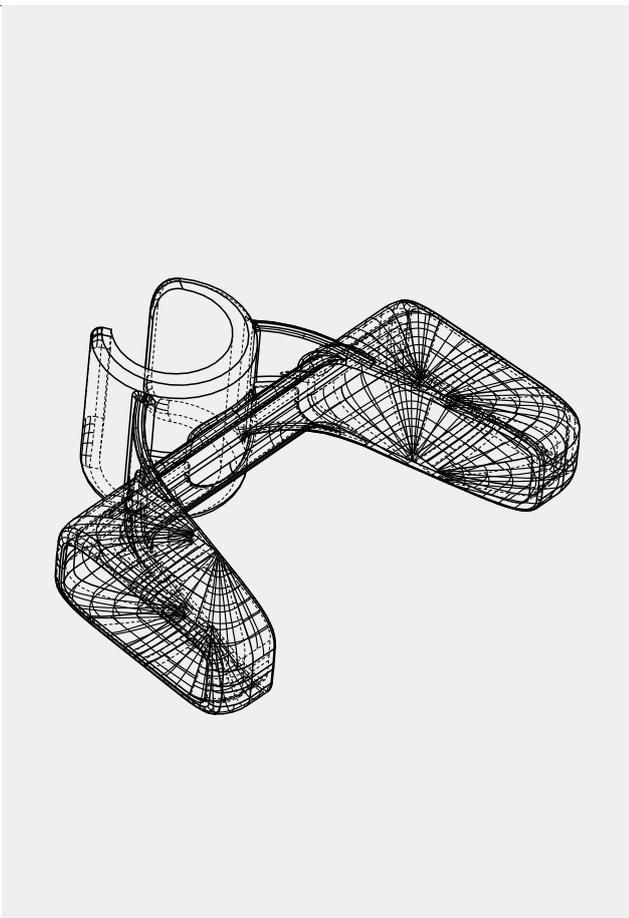


4



9

5



6



6



# THE PRODUCTION

## Blending, vulcanisation and refinement

The primary executive processes pursued by the company can be classified in: **blending, vulcanization and moulding** (compression, transfer and injection) **and refinement, assembly and checks**

### BLENDING

After the raw material is attentively selected, it is blended according to formulas developed, approved, and tested by the company. Rex Articoli Tecnici SA owns internal mixing lines and open mill compounders. The product is kept under constant control while onto the lines. The tests implemented on the material are standard, or agreed with the clients, according to their own requirements and those of the product's final application itself. The entire procedure is monitored and traceability is guaranteed from the

blending phase, up to the finalization. Special attention is paid to optimising energy consumption, use of the raw material, and to production schedules. Rex Articoli Tecnici SA can use up to 6000 Kg of raw materials per day.

### VULCANIZATION AND MOULDING

The company owns a wide range of machinery to ensure an optimal vulcanisation process. For compression moulding, Rex Articoli Tecnici SA has more than forty presses with a closing force of up to 10000 KN and heating plates of up to 1.5m. The compression presses enable a production of large scale items with bulky metallic inserts. For injection moulding, the company possesses horizontal and vertical machines

with a closing force of up to 6000 KN and a maximum injection capacity of 6 lt. The production data are cronologically and centrally filed, and are planned and assessed with an MRP system. The data are registered with centralised bar code systems.

### REFINEMENT, ASSEMBLY AND CHECKS

Rex Articoli Tecnici SA has various refinement systems for moulded items based on cryogenics and has a washing and checking department to ensure that the supplied items are extremely clean, also for food sector. The assembly department can provide pre-assembled systems according to the wishes and requirements of the client

1



1

The mixing lines are fitted with modern equipment for preparing the suitable material for a usage in various forms of moulding – injection, compression, and transfer.

2

Rex Articoli Tecnici produces mixtures with different characteristics, **from natural rubber** compounds in a broad range of colors, **to compounds** with a high technical content, such as silicones and fluoroelastomers.



2



3

4



5

3

There are more than **40 small and large presses** available for compression moulding. The picture shows a press with a closing force of 10000 KN and a 1500 x 1200 mm heating plate.

4

For injection moulding, the company uses more than **25 presses** with different characteristics and sizes, which enable rational and optimised processing. In the image below is an injection press for producing items made from silicone and rubber-metal.

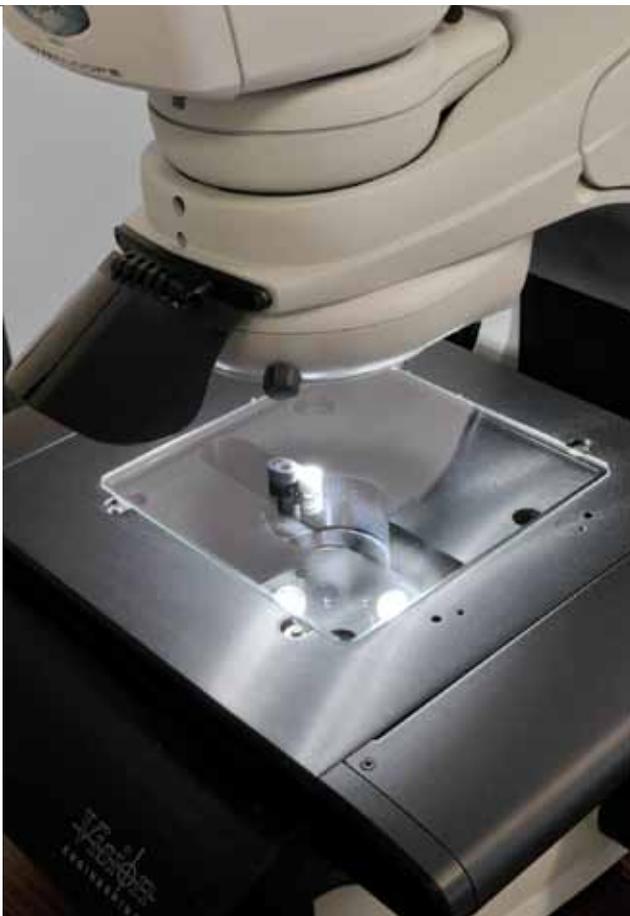
5

More than **2000 moulds** are maintained in good shape through special cleaning and storage treatments. The picture depicts an automatically run storage system for moulds smaller than 250 Kg, with a storage capacity of more than 120 tonnes.

6



7



6

In the refinement, checks, and packaging department, the product is subjected to specific checks and tests. Depending on the client's requirements and the application, 100% checks of particular properties of the product can be performed.

7

The checks and measurements during production, and on the final product, are carried out with modern measurement systems. Elastic materials require specific contact-free instruments.

8

In order to optimise the physical mechanical properties of certain materials, it is necessary to subject the items to a **post-vulcanisation** thermal treatment. Special machines prevent the product from being deformed.

9

Rex Articoli Tecnici SA also **assembles and supplies complete systems**. In some specific production cases, certificates of conformity can be issued even for individual items.



8







In the picture: Some examples of objects used in the electronics, mechanical construction, food, and medical sectors.

# TECHNICAL PRODUCTS

## Traditional applications

Rex Articoli Tecnici SA manufactures technical products in a wide range of elastic materials, both vulcanised and in thermoplastic elastomers (TPE). The company produces items for various industrial sectors such as **construction**, **railway construction**, and **infrastructure**. It has also a department that produces items for **the food sector** (HACCP). For the **pneumatics**, **hydraulics**, and **electronics** sectors, it ensures that items are clean, using special washing and packaging processes, in an environment that is particularly low in pollutants. The properties of the material are optimised for each product.

1

Seals for the **drinking water** sector and **sewage systems**. The company develops and owns special formulas, approved by the organisations in charge, and collaborates with the client to obtain the relevant approvals.



2

In the **sanitation and mechanics** sectors, particular attention is paid to selecting suitable material and to creating a product that is free from defects

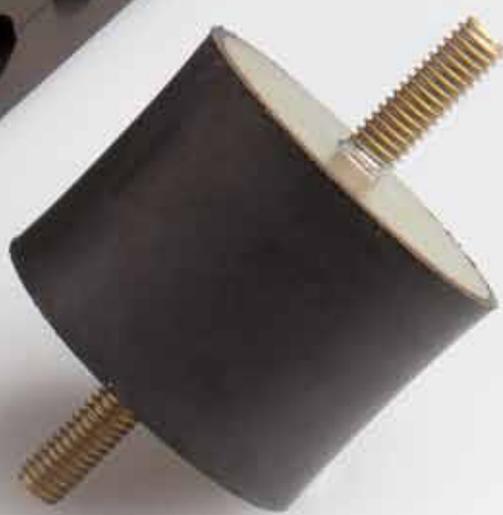


3

**Bellows** are subjected to high stresses and require the selection of a material that is especially resistant to the effects of the surroundings. The simulation and prototyping can help avoiding mistakes in the creation of the product.

4

Requirements in the **automobile industry** become every day more demanding. Objects that are silicone-free, non-staining, and exudation-free have already become a standard requirement. This also applies even to those products only used in the assembly line.



The adhesion of the elastic material to the metal supports takes place during the vulcanisation process. The company applies **special treatments to the surfaces** to optimise this adhesion. In the field of anti-vibration products, the company collaborates with designers to find optimal solutions. Simulation and prototyping enable these solutions to be optimised before the product is manufactured in serial production.

# RUBBER AND METALS

## Combinations of rubbers and various materials

Rex Articoli Tecnici SA has always dealt in putting the right material in the right place.

Sometimes it is not possible to have all the optimal properties in one material, reason why it is at times necessary to **combine different parts** within the same product. The possibility of combining a rigid metal part with a part made from elastomeric matter has been known for years. The company has developed various procedures to combine elastomers with other materials such as **plastics, Teflon, resinous materials, and even wood.**

In the field of **anti-vibration** items and those for protection against seismic phenomena, the optimal insertion of metal parts prevents from excessive deformation, which can lead to premature fatiguing of the material.

The introduction of thermoplastic elastic moulding, introduces Rex Articoli Tecnici SA to an alternative possibility for manufacturing rubber and metal products. **The combined injection** of two or more materials (2K and overmoulding) is applied in the company's thermoplastic moulding department. This enables the technicians to create innovative solutions, providing designers with a wide range of new solutions.

1

2K product for the washing machine sector, with the combination of a **rigid supporting material and a soft elastic material**, as sealing. The application made it possible to replace four separate products with a single combined product. The seals are made from TPE.



2

The upper elastic part of **the Ergopin**, produces the same effect as the mechanical spring that was inserted in the previous models. This solution has led to the creation of a product that is valid, not just from a technical point of view, but also from an aesthetic one.



3

Special treatments of Teflon surfaces combined with a metal inner part enabled the creation of anti-vibration products, with **extraordinary sliding properties.**



4

The 2K technique made it possible to create **practical and resistant** objects with a peculiar **optical effect** (buttons for switches).

The development and selection of reinforced **silicone materials** have given rise to the possibility of replacing the current leather bellows for conducting cooling air to the engines on locomotive boogies.

The construction of special laboratory equipment makes it possible to test the product to guarantee that application requirements are met and to achieve fair durability guarantee.



# PRODUCTS FOR THE RAILWAY INDUSTRY

## Anti-vibration, insulation and safety products

Rex Articoli Tecnici SA started producing technical items for railway construction in the 70's, in conjunction with the beginning of the first manufactures of **ballast-free railway** lines in Switzerland.

In collaboration with the producers, the company's technicians have developed new systems for isolating the vibrations of railway lines in tunnels. The technique has been developed further into one of the main methods used in laying ballast-free tracks, especially in constructing metros.

The need to **prevent vibrations** at the source led the company to propose alternative solutions for the construction of railway carriages: special anti-vibration objects are built into most vehicles.

Today, the company also offers solutions for air ducts, electrical insulators, and safety equipments. The **IRIS certification** obtained in 2010 allowed the Rex Articoli Tecnici SA to put itself forward in designing and supplying technical products for the major locomotive and wagon manufacturing houses.

Recently Rex Articoli Tecnici SA was able to produce the antivibration elements for the ballast-free railway of the Gotthard tunnel, the longest railway tunnel in the world.

1

The **suspension systems** for lowered carriages are made with special materials that are highly resistant to dynamic stresses. The natural rubber product grants a much longer lifespan than traditional suspension systems with mechanical helicoid springs.



2

The **elastic shoe** (with the insertion of sheets of micro-cellular foam rubber around the concrete sleepers inserted into the ballast-free structures) enable optimal reduction of vibrations transmission between the rail and the load-bearing structure.



3

Rex Articoli Tecnici SA develops and manufactures **rubber-to-metal** technical products for the leading railway locomotive and wagon construction firms.



4

The company creates adhesions between elastomeric materials and rigid load-bearing structures. The **insulators for electric railway** lines are made from silicone with a reinforced epoxy resin core.

As well as the range of spare parts products, Rex Articoli Tecnici SA also develops and offers solutions to the main **bicycle brake manufacturers**. The company has a well-equipped laboratory and is able to test the braking efficiency on all types of rims. The firm has recently developed and built a special machine that is used as a reference by several certifying bodies.



# SWISSSTOP®

## Bicycle brake pads, disc brake lining, and application products

In 1970, Rex Articoli Tecnici was already producing bicycle brake pads for an important Swiss factory. The company then closed down production, and Rex Articoli Tecnici SA wanted to take advantage of its own knowledge in the field to offer the product on the spare parts market under the commercial name **Swissstop®**. The market responded well, encouraging the company's technicians to create and offer more alternatives for different kinds of rims and designs.

Today, Swissstop® is one of the most highly-rated bicycle brake pad manufacturers and offers spare parts for all types of braking systems. In the field of brake pads for carbon rims, Rex Articoli Tecnici SA is a world leader. More products were later added to the range. The invention of **disc brakes** for mountain bikes encouraged the company to enter the brake lining sector as well. Other **treatment products** have been added to the sales range. Swissstop has an international sales network with a presence in most countries.

The products can be seen on the website [www.swissstop.com](http://www.swissstop.com).



3

**Swissstop Disk brake pads** have achieved a quality level of primary importance. In the mountain bike sector, traditional pads and sintered designs are an international indication of quality and sharpness.



4

Rex Articoli Tecnici has also developed special products **for eliminating noise** while maintaining the braking effect. "Silencer" sprays have already become a successful product.

# CONTACTS

## Useful informations



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### HOW TO REACH US

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**Email:** [sales@rex.ch](mailto:sales@rex.ch)  
**Web:** [www.rex.ch](http://www.rex.ch)

### BY PLANE

From **Zurich Airport** you can reach Mendrisio, thanks to the rail service.

From **Milan Malpensa Airport**, a shuttle bus service is available. From 2015 a railway line connects Malpensa with Mendrisio.

The company is also easily accessible from the **Lugano-Agno Airport**.

### BY TRAIN

The company Rex is very close to the train **station of Mendrisio**.

The train service offers a rapid transport, all over Switzerland and the near Italy.

More informations:  
[www.ffs.ch](http://www.ffs.ch)  
[www.trenitalia.com](http://www.trenitalia.com)

### BY CAR

From the **motorway A2**, exit Mendrisio-Varese-Stabio, at the first roundabout follow Mendrisio, at the second roundabout take the first exit and continue on Via Borromini. After 400m take Via Rime. After 200m, turn right on Via Catenazzi. Continue until Rex customers reserved parking space (GPS address: Via Francesco Catenazzi 1).

