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NEWS

INFORMATION MAGAZINE REP N°3



Feature
REP
assistance

rep

Rubber injection

EDITO

News of the World

It's a small world? But in today's world, which of us is not busy trying to bring closer things that yesterday were still "on the other side of the world"?

Local markets are emerging and are becoming stabilized. For REP, the Asian and South American markets have already taken on major importance, and should benefit from all of our know-how and an enhanced level of service whether it be in the commercial sphere or in the form of technical assistance.

Thus it is only logical that REP is reinforcing its international network by setting up solid bases in China and Brazil.

The first role of these new organizations is to enable us to be closer to our customers and meet their needs, locally and in collaboration with their various branches in the world.

At the same time, strengthening the REP Group's service potential is designed to ensure better performance and increased effectiveness all over the world.

This guarantee is a deciding factor for each of our customers: it represents the dependability and vital assurance needed at each step of our development in the international market.

Bruno TABAR

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**Local service is
a guarantee of
internationalization**

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Rep Injetoras de Borracha LTDA

A New Subsidiary in Sao Paulo

During our twenty-five years of participation in the Brazilian market, REP has witnessed a quite remarkable integration of Brazilian industry into the world market. Thus the creation in 1997 of a subsidiary, REP INJETORAS DE BORRACHA LTDA, would be in effect the ultimate confirmation of this development. It gives Brazil a new organization that is both flexible and dynamic and better able to meet market requirements.

As in Europe, the USA and Japan, it is world standards of quality that determine the needs of the Brazilian manufacturers. With the creation of the REP subsidiary, they have gained a major advantage that should enable them to be competitive in the international arena. Located in Sao Bernado do Campo, in the eastern suburbs of Sao Paulo, REP INJETORAS DE BORRACHA provides personalized sales service directed by



◀ Evaldo BARBOSA

Evaldo Barbosa, the REP Sales Manager for the last five years. His team, which is completely bilingual, serves some forty customers.

REP assistance, which is insured with ASAMAQ, offers the following:

- Technical assistance: commissioning, guarantee and preventive maintenance contracts and troubleshooting.
- Technical training for our customers' operators with annual courses that are designed to their needs.
- The renovation of old presses.

There will be an inventory of spare parts on site in order to better ensure the maintenance of 220 previously installed injection presses (50 of which are microprocessor -controlled by Intelinfect®).

This service structure confirms REP's leading position in Brazil and its commitment to the market there. In a continuously evolving market, this ability to meet the customer's every requirement is necessary for the success of REP and its customers.

Raphaël SANCHEZ

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Rep Beijing The Other Dimension

In a country with a population of 1.2 billion, the industrial venture is destined to take on a whole new dimension. And REP, which is established throughout China, is making an active contribution in that country.

A page of History

Since 1990, the story of REP in China has been punctuated with a number of very high level technological successes: pharmaceutical stopper production lines with a capacity of 1 billion units, a 5 meter long composite insulator molding plant, and a tire bladder molding plant for automobiles and light commercial vehicles. More than 60 REP presses are part of this new manufacturing expansion in China.

REP: A Strong and Extensive Presence

In light of these initial success stories

and the incredible transformation of China, it was very important for REP to focus on future developments in this market. Thus in 1996, we reinforced our presence with the creation of a permanent office in Beijing. In order to cover the territory in as rational a way as possible, we have established an extensive sales network with offices in the major regional capitals: Shanghai, Wuhan and Canton.

Active Cooperation

Rubber injection technology is still in its infancy in China and it will be necessary for REP to provide assistance to



► Georges Leclerc
and his team in Beijing

customers regarding machinery, materials, and molds. These activities are steadily progressing, thus the Xi'an Rubber Institute, whose capability extends to taking over our applications service and providing assistance with mixes, has just signed an agreement for collaboration with REP.

Georges LECLERC

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To assist on every occasion with your production and development, REP Technical Assistance offers you a partnership, a service standardized throughout the world.

REP ASSISTANCE BASED ON YOUR VISION OF THE WORLD

AVAILABILITY

Spare Parts

REP France manages over 7000 spare parts.

Our stocks are available in each one of our subsidiaries as well as from our principal partners, this

means that in 95% of the cases we can comply with the initial delivery time requested by our customer.

Troubleshooting

Our troubleshooting teams can either provide a solution by telephone or offer direct on-site service, often in the event of an

emergency. Their effectiveness means reduced press downtime as well as lasting repairs.

Maintenance Contracts

To ensure the optimum reliability of your presses, REP France and its subsidiaries provide a program of yearly technical inspections. These are arranged

to suit your requirements and give you the advantage of optimum settings and enable you to guard against any potential failure.

OPTIMUM PERFORMANCE LEVELS

Training

Our training

courses are designed to optimize the skills of the personnel operating and maintaining the REP presses.

These courses, which are both numerous and open-ended may be standard or personalized, take account of all generations and all configurations of equipment. Training is given to suit your convenience in Lyon, in our subsidiaries, on our partners' premises or in your plant.



Maintaining machinery, optimizing the performance of your personnel and your presses, ensuring the success of your plants wherever you establish them and of the transfer of your facilities: each one of these requirements demands a specific solution if your projects are to succeed. To ensure these activities, REP now enjoys a high-performance multi-site structure. Each REP organization has all the skills needed in order to assist you. What is more, it also enjoys the permanent technological and logistic support of REP France. In this way, the availability, uniformity and consistency of our services serve as a guarantee throughout the world market.

Gérard MOREL

The Applications Laboratory, 4 Presses, 40 molds and all the REP Techniques



TECHNICAL ASSISTANCE



- Rep France
- ▲ 6 Subsidiaries
- 15 Agents with Technical Assistance
- 17 Agents



Retrofitting
A REP press is required to use a wide range of tools throughout its working life.

The options retrofitting program is designed to ensure the versatility of the equipment used in order to keep abreast of market developments. The REP Applications and Special Machines departments can carry out specific studies so as to provide you with a personalized solution.

Renovation

REP will renovate old presses that you may wish to put back into service.



Gérard MOREL

REP APPLICATIONS

Serving all industrial sectors



When REP invented rubber injection, it also had to develop the appropriate mold and tooling technology. This is the job of the Applications Team, which lends assistance to all industrial sectors in order to maximize the features offered by the REP presses.

In the field, this close collaboration takes various forms: surveys, training courses, mold tests, inspection visits, innovative technological developments, contacts with mold makers as well as all the complementary external resources.

To date, over 10,000 surveys have been carried out, within a wide range of market niches including automobiles, electrical household appliances, building, sports and leisure pursuits, medicine, pharmaceuticals, electrical equipment and defense.

Ezio NOT

Rep corporation

The New Team in USA/Canada

▼ REP Corporation



The REP Corporation team, composed of 22 people, was recently restructured in order to reinforce the services enjoyed by our customers. Michel Quenaud, who has been with REP Corporation for 20 years, was appointed Technical Manager, and Steve Gaines Field Service Manager. Both enjoy the support of our Training Manager, Russ Becker.

1150 presses in operation: REP has a very active role in the North American market, with the accent on the quality of its services. Created in 1971, today REP Corporation supports from Bartlett (Illinois) over 160 customers.

Ron DAGAR

SALES	ON-SITE SERVICE
<p>Advisory services and sales: A team of three direct sales engineers and two representatives prospect and ensure sales progress throughout the United States and Canada. The direct sales team (Tim Graham, Jack McConnell and Wayne Matott) has a total of over fifty years' experience in the rubber industry.</p> <p>Applications studies: The in-house technical service assists customers with the assessment of applications, which more often than not leads to a technical survey. This ensures that the REP presses meet, often surpass, requirements.</p> <p>Mixing tests: Customers are invited to provide samples of mixes for testing in order to ascertain their compatibility with injection molding.</p> <p>Molding tests: Tests prior to mold production can be performed on demonstration presses. Production molds are regularly tested on REP presses as part of our procedures of installation on the client's premises.</p>	<p>Troubleshooting: A team of eight multipurpose technicians provide on-site service, normally within 24 hours, or immediate troubleshooting service by telephone.</p> <p>Spare parts: The size of the permanent stock of spare parts means that REP Corporation can dispatch the parts on the day the order is received.</p> <p>Training: There is a wide range of courses designed for operators, maintenance personnel and process engineers. The Bartlett Training Center for REP equipment users provides a four-day course, with two days devoted to theory and two days to practical training on the equipment.</p> <p>Retrofitting: Numerous press functions are technically upgraded on site in order to keep abreast of changing processing requirements.</p> <p>Renovation: Old presses are renovated either on site or in our workshop. An outside supplier, who is under contract with REP Corporation, also provides this service.</p>

BLADDER injection

The bladder is an essential component; it is used during the vulcanization of tires. Produced by injection, a technique that is becoming more and more widespread, means that manufacturers can enjoy an appreciable gain in productivity.

The butyl rubber bladder, inflated by the injection of steam inside the casing so as to shape it, was traditionally manufactured by the compression method.

The manufacturer by injection is coming into more general use. It not only significantly reduces cycle time, but also allows the manufacturer to produce thinner and more accurate bladders, increases the life of the bladder by 40% and reduces material losses by 20 to 30%.

The economy is simple: the bladders obtained are both less costly and of better quality, and manufacturers benefit from a means of progress enhancing the quality of the tire.



▲ Closed Bladder



▲ Hydraulic Ejectors on Moving Traverse

“Open” or “closed” bladder?

REP has presses designed to produce both types of bladders, with a closing force of up to 2000 tons.

The closed bladder requires a more conventional type of equipment, i.e. a vertical press with a central ejector on the moving traverse.

The open bladder requires an additional central ejector on the fixed upper traverse. This ejector is made by return travel of the head, i.e. part of the mold, fixed to the machine nozzle, is interlocked with the injection unit.

Special bladder cycles integrating ejector movement, vacuum pulling and sending compressed air for demolding, are available on the microprocessor controlling the machine.

The molds are heated either by steam circulation or electrically,

The REP presses, which are amply tried and proven for this application, have all of the technical benefits and are generally regarded as a yardstick with regards to bladder injection.



▲ Open Bladder

Stéphane
DEMIN



▼ S800 Vertical Press,
Injection Volume
11,400 cc
Closing Force
8000 KN

The rotary, the ideal press for automation

The Process:

The rotary press derives its name from the circular configuration of a variable number of component workstations, each of which includes a complete mold closed by clamping jaws. The working principle consists of rotating the stations so as to present them in turn under the "main station" frame, which is equipped with hydraulic locking and injection assemblies.

- Mold rotation frequency, and thus the time between two demoldings, is determined by the cycle time on the main workstation.

- This time, which varies from 16 to 20 seconds according to the parts to be produced, comprises the frame + rotation movements and the injection cycle.

- The plasticizing phase is carried out in masked time, as the rotary press includes several hydraulic units.

Vulcanization of the mix starts as soon as injection is completed on the main workstation and continues on the other stations, rotation after rotation. The number of vulcanization stations is thus the quotient of cure time by main workstation time.

Example of Workstation Calculation:

Cure time 2'40"

Time at main workstation 20"

Number of vulcanization stations 8

As soon as vulcanization is completed, the various operations in the production cycle are divided among different stations:

- 1 parts demolding station
- 1 feeding runner station
- 1 or more insert loading stations

When 1 safety station is added, the whole operation is fully automated.

Paul RAPPY



◀ 70 Ton
Rotary Press

Rubber + metal parts: automation for quality

Segmenting the production cycle into separate stations enables the rotary press to offer very appreciable advantages as regards the production of rubber + metal parts.

This sequential program, allied with the small number of mold cavities, enables the different phases to be automated using simple and proven methods and enhances the reliability of automatic production.



Filling the cavities by injection ensures the production of high-quality parts.

REP and SACOMAT are developing on your behalf all the applications of this original technology.

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— GROUPE rep —

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