

#11 REP

NEWS



NOVELTIES
G10 Range: tenth
Generation of REP
Molding Machines

NEWS
New Machining
Center

PHOTO STORY
Immersion With
The Aftersales
Department

G10 *Infinitely Smart!*

Contents

INJECTION... AND BEYOND

Produce zero-defect rubber parts!

- Unrivalled injection technology
- 3-step closing unit with flawless mold clamping

Save time and increase efficiency!

- Autotuning software for quick, easy and optimized setting
- New multitask HMI (user-friendly and intuitive navigation on a 21.5" touch-screen)
- Ergonomic improvements: extruder inlet accessible from ground level without platform, optimized working height

Save energy with Ecopack!

- Reinforced thermal insulation allowing for a 15% reduction of energy consumption dedicated to heating
- Servomotor-driven pump arriving at a 40% reduction in energy consumption dedicated to hydraulics

Keep confident about maintenance!

- Proven sturdiness and durability
- Predictive maintenance software (self-monitoring detecting the degree of wear of components)
- 3G wireless connection to make telediagnosis and remote support service easier

Say hello to
G10...
THE SMART
CHOICE!



V710 - 5000 kN



RUBBER IN MOTION

WORLDWIDE NETWORK

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REP NEWS No. 11

Information bulletin of the REP GROUP

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Editorial

The Wind In Our Sails

With an increase of its turnover by 10% in 2013 and by approximately 15% in 2014, the overall strategy of REP international is bearing fruit. We have been developing two parallel ranges of injection molding machines for 10 years to meet the needs of customers both in emerging markets and high-tech markets.



Building on these achievements, we are intensifying our strategic positioning efforts to best serve our clients. We are undertaking extensive investment both in product developments and industrial developments. We are renewing and modernizing our production facilities in Corbas, installing new machining centers and modernizing the plant. This site near Lyons is the main plant of the group where most of our machines are manufactured. We continue and will continue to develop this plant because it's the best suitable production facility to meet the requirements of the most advanced processes and to answer customers' needs in Western countries.

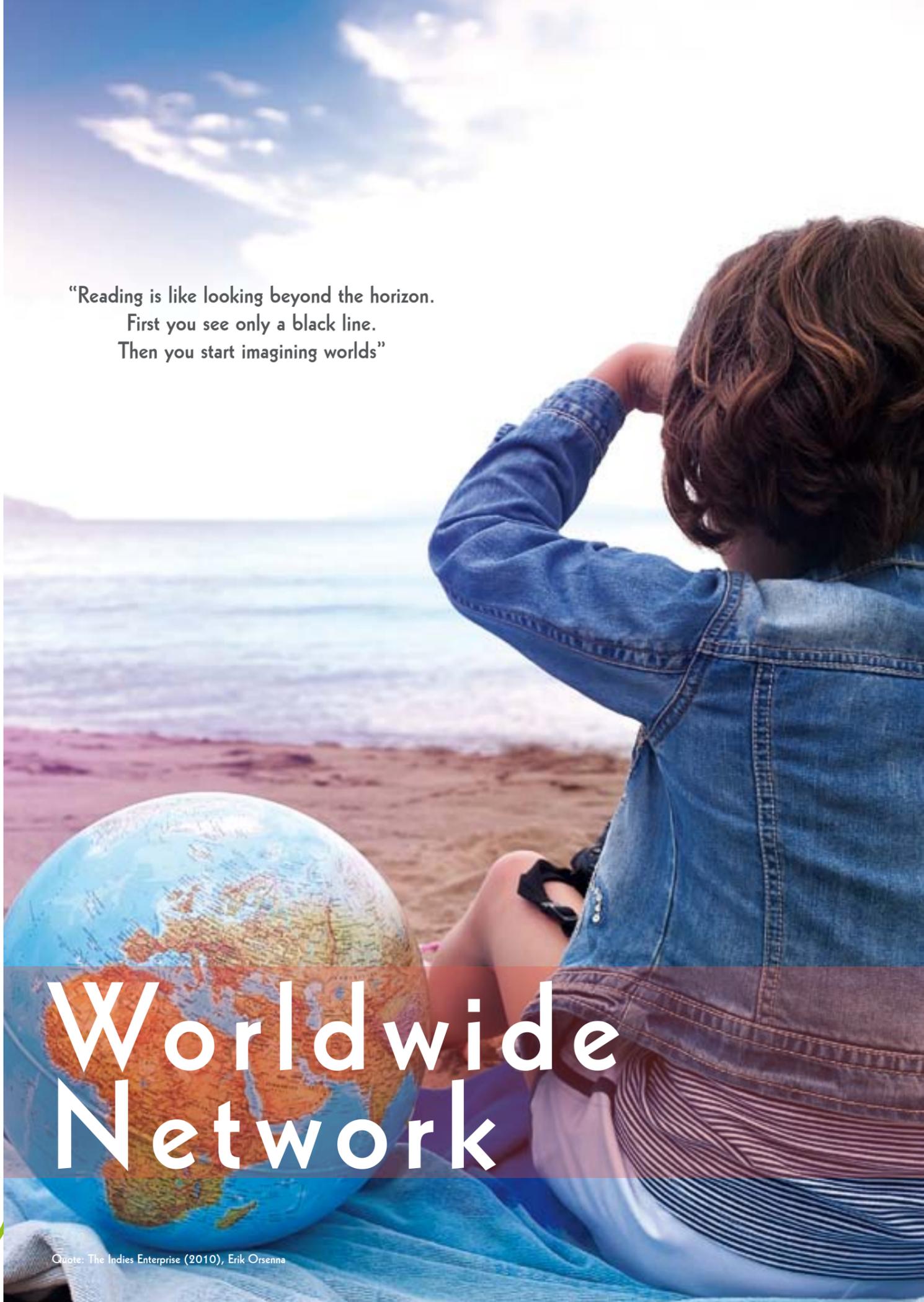
At the same time, we are opening two new production facilities in Asia in order to locally manufacture low-cost machines answering local requirements.

In line with the new corporate baseline "Rubber in Motion", REP is always in motion! We are like a ship under full sail, ready for new challenges!

"We are like a ship under full sail, ready for new challenges!"

Bruno Tabar
Chief Executive Officer
REP international

**"Reading is like looking beyond the horizon.
First you see only a black line.
Then you start imagining worlds"**



Worldwide Network

Quote: The Indies Enterprise (2010), Erik Orsenna



A NETWORK IN MOTION

FROM THE SALES MANAGER'S DESK



"The question that drives me every day is what could we offer to our customers that would allow them to be more competitive? We develop new products (G10, bi-compound CMS) and we diversify our offer to provide new solutions to current and future problems of our clients, but we also have a responsibility to provide first-class service. A machine is only useful if it covers requirements, if it is properly operated and constantly in production. That's why REP has the world's largest service network in our branch. In this issue you will read about some newcomers we are pleased to welcome to the network." **Stéphane Demin**



EXPERTISE EVERYWHERE WITHIN REACH!

REP's sales and service network is made up of 6 subsidiaries (USA, Germany, Italy, Russia, Brazil, China) and of about 30 agencies and is continually evolving so as to better adapt to existing demand and local requirements.

With offices all over the world, REP affiliates make REP international's expertise and experience available to customers even in far off places.

They are recognized experts in their field and country and they regularly meet for training

in headquarters in Lyon-CORBAS so as to provide better customer service for both pre- and after-sales assistance.

CROATIA - SERBIA MONTENEGRO



The ROBIS Robertino Sevšek s.p agency is not really new, as they have been working with REP since 2010, but we take the opportunity of Croatia's recent EU accession to highlight this cooperation.

The agency, covering the countries of the former Yugoslavia, is specialized in project management for the development of products

and processes for rubber technical products. In a sector destined to grow substantially in the coming years due to relocations to the Balkans, ROBIS provides customers with the technical expertise REP is known for.

Pre-sale consulting and after sales support

Skilled in the management of complex projects integrating the compound formulation, the mold, the injection machine and the final cost of production, Mr. Robertino Sevšek provides pre-sales advice and after-sales support for REP's machines, building customer loyalty in collaboration with Mr. Pascal Consolaro, area sales manager.



Robertino SEVŠEK

SOUTH AFRICA



Carst & Walker South Africa is part of Hobart Enterprises Group*, the holding company of numerous chemical importing and distributing companies worldwide.

The company was established in South Africa in 1934 and has, over the years, expanded to become a substantial importer and distributor of chemical raw materials which find application in the plastics, rubber and rubber machinery industries. This has been the basis for concluding a representative contract with REP for South Africa and Zimbabwe.

Together with Mr. Stewart KNIGHT, area sales manager, Carst & Walker will provide both before-sales and after-sales support for REP machines.

The company managed by Mr. Jaco SMITH has some hundred employees. It has offices and warehousing facilities in all the major centres in South Africa and represents many major multinational chemical companies on an exclusive basis.

Carst & Walker also has a manufacturing facility namely Anchor Chemicals. It manufactures materials for use in the rubber industry.

Through their global network, Carst and Walker South Africa can source virtually any raw material or product, be it branded or generic and with their real time tracking of new technologies and consumer trends in each end-market, it allows them to assist their customers with their product formulations.

**The Hobart Enterprises Group operates in Australia, UK, Ireland, Nigeria, Kenya, South Africa and China selling into 36 countries globally.*

UNITED STATES

REP Corporation names new managers

Responding to growth in sales and expanded market opportunities, REP Corporation adds to staff **John "JR" MOHL**. He was appointed to the position of **regional sales manager**.



John "JR" MOHL

Commenting on the appointment, REP Corporation President Tim Graham observed, "We have been experiencing considerable growth in our business, with new machine orders from many of our longtime customers and also the acquisition of new customers who've come our way as the result of the new equipment offerings in our suite. We know JR will be a real asset to our efforts in the field. He also obviously has the right genes for the job..." Graham joked in

reference to the new employee's father, John MOHL, also a REP regional sales manager and an acknowledged expert in rubber molding technology.

A resident of Kalamazoo, Michigan, JR MOHL comes to REP with 15 years experience in various customer service and sales roles. He holds a degree in Aviation Flight Science and a MBA from Western Michigan University.

Mr. James P. WIRTZ II (Jim) has been appointed the **Service Manager Position for REP Corporation**.

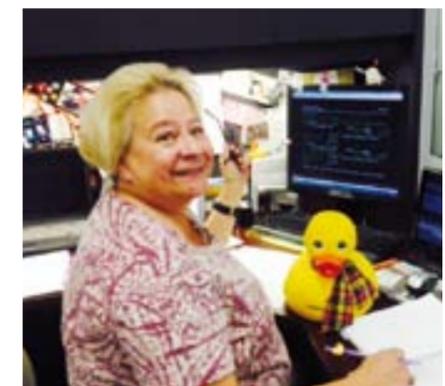


James P. WIRTZ II

Mr. WIRTZ'S background is extensive in the rubber and molding industries; his family owns and operates Wirtz Manufacturing, an injection molding shop in Michigan.

When the company moved its direction to battery machinery in the mid 1990's Jim's passion for molding continued to drive him to the industry, designing and constructing manufacturing facilities over the entire United States. "My entire life I have been involved in either Injection or extrusion molding processes, it is a great honor to be a part of REP Corp and the global group REP International, the rubber industry is where my grandfather started, where my father worked his full career and where I belong."

Scheduled retiring



Ursula MOE

Mrs. Ursula MOE is retiring after nearly 30 years of faithful service at REP Corporation. We wish her all the best for the future!



Jaco SMITH (Carst & Walker) and Stewart KNIGHT (REP) signing the contract, with, from left to right: Dr Kathy Garde, Ron Dunwoodie, Jenny Warner, Velogan Muthayan, Pieter Snyman, Paul Rose and Paul Edge, all of them members of Carst & Walker. ©Southern Africa Plastics Composites Rubber Technology



UNDER THE INFLUENCE OF THE TIGER AND THE DRAGON...

A DISPARATE BUT DYNAMIC REGION

Asia is a prominent producer zone for natural rubber. Its distinctive feature is that it is comprised of many different markets.

South East Asia is marked by the great disparity of states of which it is composed and by major development gaps within them. While some countries approach Western standards of living, others continue to be affected by their troubled history or their long period of isolation and are still among the poorest countries in the world.



Although these countries have heterogeneous natural and human resources and they are based on different business models, they

share, so to speak, an "Asian culture" - i.e. strong cultural influences of Buddhism, Taoism, Hinduism and Confucianism - and they show fast recovery abilities and a considerable growth potential.

REP's ASIA PACIFIC network is organized around several actors, namely 1 subsidiary in China and 6 agencies, the area sales manager CONSOLARO, and our 10-year partner Tung Yu, with a view to meet customers' needs and expectations equally whether "Tigers" (Thailand, Malaysia, Indonesia, India,) or "Dragons" (China, Vietnam, South Korea, Taiwan, Singapore and Hong Kong).

In addition, new establishments are currently being launched in India and China to locally produce machines best suited to the specifications of these markets.

The Big Rubber Marketplace

The Asia/Pacific region is by far the largest market for rubber. Rubber global consumption is expected to rise by 4.4 percent in 2014 driven by demand from Asia.

About 48% of the Natural Rubber world demand comes from China, India and Malaysia. Consumption in India is likely to grow 8.5 percent whereas China will surpass the United States to become the largest market for industrial rubber products.

The Top 3 Natural Rubber consuming countries:
China, India, Malaysia

The Top 5 Rubber Producing Countries:
Thailand, Indonesia, Malaysia, India, Vietnam



Wang Xiaobo
URP Machinery
General Manager

URP MACHINERY: A NEW ENTITY AND A NEW RANGE OF RUBBER INJECTION MACHINES!

United Rubber & Plastic Machinery (Langfang) Ltd., also called URP Machinery, is a new company affiliated to the REP Group and led by Mr. Wang Xiaobo, REP China's manager. URP Machinery aims at manufacturing, commercializing and ensuring the after-sales of rubber injection molding machines in the growing Chinese market.



"The Chinese market is a major challenge with a huge potential", so Bruno Tabar, Chief Executive Officer of REP, "that's why we count on synergies with strong partners to continue to generate growth".

URP Machinery is a joint-venture between REP international and LWB Steinl: both are present in China since many years, but do barely overlap on the market, giving way to this strategic alliance, where the companies will share their resources and offer competitive prices of their products to the growing Chinese market. Outside the Chinese market, the companies remain independent and are still in direct competition to each other in other regions.

Location of the new plant is Langfang, Hebei Province, southeast of Beijing. In the new plant with a production area of 2,500 m²,

a new machine series, intended for the profile industry and the technical rubber parts sector and specially tailored to the Chinese market, will be manufactured.

The new rubber injection machines called "URP by REP" will be made in Langfang but equipped with a REP injection unit manufactured in France, thus combining European know-how and high standard of quality at a competitive price. This new machine series will accept existing tooling and molds operated on REP machines.

Said alliance was primarily necessary to ensure a better product/price positioning on the Chinese market becoming the world's largest market, where due to increasingly intense competition more and more customers are considering acquiring highly-productive, reliable and long-lasting modern production means, but at prices below those offered for our premium machines made in Corbas.

We wish URP Machinery every success in their future business!

PRODUCTION IN CHINA

REP CHINA MERGES INTO URP MACHINERY

Established in China for over 20 years and regarded as the benchmark for rubber injection equipment, REP merges their subsidiary REP China with the new plant URP Machinery.

All in all, URP has a dynamic and experienced team, known for its ability to handle complex projects to serve our Chinese and international clients.



REP China's staff

Some Geography?

Langfang, close to Beijing and Tianjin, covers an area of 6,429 km² and has 3,850,000 inhabitants.

Langfang does not have a land port or airport, but it is only a one-hour drive from Beijing Capital International Airport and the Tianjin New Port.

Within 10 years Langfang has become the most attractive location between Beijing and Tianjin because its open government wanted to make it a "scientific and educational city, a center for tourism and exhibitions and a green city."

A city of entertainment where calm and greenery prevail

Langfang's beautiful green spaces are enjoyed by all, whether long-time residents or new. Thanks to seventy-five reforestation programs, green space now covers 40% of the downtown area with more than 10 sqm public green space per capita.

An ideal place for business development and investment

The ambition of the municipality was to "transform Langfang into a green Chinese Silicon Valley green and to turn it into the most beautiful city

in northern China." Businessmen who have invested in Langfang come from more than 40 countries and territories. There are 100,000 sqm exhibition facilities and about 30 star-rated hotels.

Source: Chinatoday

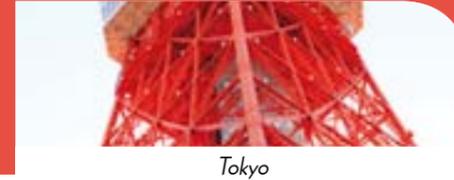


PRODUCTION IN INDIA

REP NEW SUBSIDIARY



Bangalore: The parliament



Tokyo

REP ASIA

This entity will strengthen the REP group who has been preparing the production of injection molding machines in India since 2014. This strategic development will allow Indian customers to benefit as soon as 2015 from a better local service at lower costs due to the exemption of import taxes.

At the industrial level, REP relies on an established structure that fully satisfies quality requirements. Indeed, it is headed by Europeans and it has so far



REP molding machine G9-Asia (V59A)



Our production team

produced special machines for multinational companies such as Michelin. We will continue to manufacture the injection units (the keys to REP presses' performance) in France and some other key components as well.

A dedicated service team will ensure the relationship with customers both for investment projects and for after-sales service.



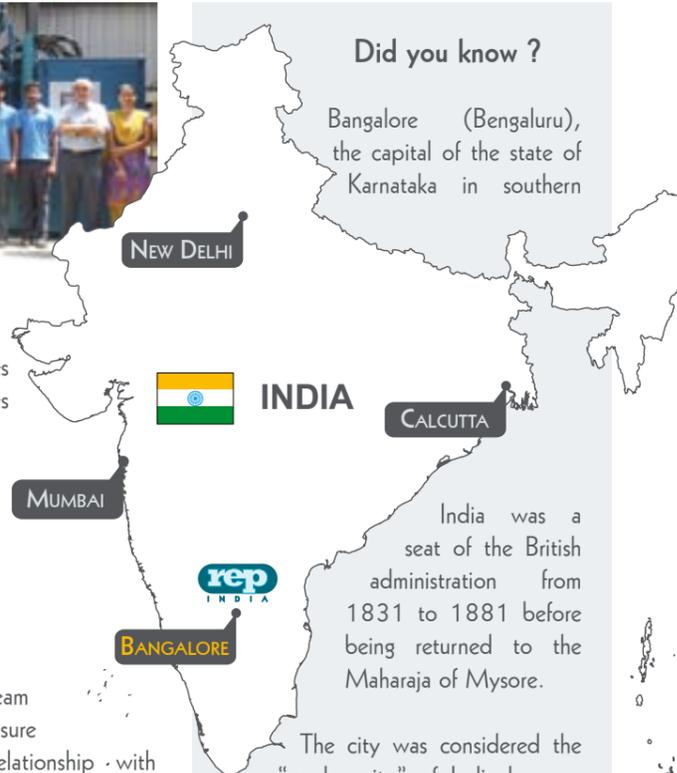
View of the G9A 12"-monitor



The new premises in Bangalore

Did you know ?

Bangalore (Bengaluru), the capital of the state of Karnataka in southern



INDIA

India was a seat of the British administration from 1831 to 1881 before being returned to the Maharaja of Mysore.

The city was considered the "garden city" of India because of its many parks and gardens. It has a tropical monsoon climate with a marked rainy season, but its relatively high altitude (920 m) makes the atmosphere less stifling than in most Indian cities.

Now a considerable academic, scientific and economic center, the conurbation with more than 8.5 million inhabitants is considered as the high-tech capital of India.

Bangalore's development is focused on new technologies, including outsourcing in the fields of computer science, biochemistry and aerospace. Many foreign companies, attracted by a low cost and highly skilled labor, have set up operations here, namely the Indian subsidiaries of Google, Microsoft, Yahoo!, Amazon, Dell, HP and IBM. Fourth technological center in the world, Bangalore has nearly 500 startups and hosts more than 700 R&D centers of multinational companies.

REP ASIA Pacific Network

High performances presses, pertinent technical solutions and additional know-how for different rubber activities, inter-connection for faster response, intensive training programs, new structures in Vietnam, Japan and India, reinforced structures in China and Thailand, all actors of the Asian Pacific network are engaged to make sure customers will get the best benefits from their high performance equipment.



Area sales manager Consolaro is very proud of REP Asian network's spirit of service and performance.

Facing the new machinery manufacturers appearing on the market who copy the European technology, they keep smiling and respond: "Well, where others perform, we over-perform!"

New affiliate in Japan



Our team in Japan

In Japan, where we have been present for over 40 years, REP is now expanding their local structure by working with K-Brasch & Co. Ltd to meet demand.

In this country where service excellence is a must, K-Brasch & Co., Ltd. with 80 years establishment is recognized as a leading company specialist for high-tech industrial equipment supply. Structured with offices in Tokyo and Osaka, K-Brasch is supporting Japanese customers with strong experienced technical team locally or overseas.

New affiliate in Thailand



Centre West's staff (agent in Malaysia, Indonesia and Thailand)

Established in 2010, Centre West International (Thailand) Co., Ltd. – known as CWI – provides with their 40-year experience in the rubber activities the best service to local or foreign companies established in Thailand, supplying from rubber chemicals to various types of machineries. CWI is the perfect partner to support customers seeking an improved competitive position by offering them solutions to achieve productivity and quality improvements.

"Advanced technology Tempinverter® is incredibly efficient and far ahead from any other injection machineries available", says CWI's manager Kok Chee Hock. "Our customers who are using it find immediate real significant gains on

production and parts quality, it give them strong advantage on this competitive market."

New affiliate in Vietnam

Established in 1994, Kim Think Co., Ltd. is recognized in Vietnam as the best technical structure to handle and service from basic to turnkey projects in the rubber industry.

A young and dynamic team of 25 professionals provides support to customers from sales to technical assistance.



Our team in Vietnam

Web:

Japan: kbrasch.co.jp
Thailand: www.centrewest.com.my
Vietnam: www.kimthink.com.vn





A 7TH SUBSIDIARY ENTERS THE REP GROUP

Since July 2013, the REP Group expanded and has today 7 subsidiaries with the acquisition of the company Watson Brown HSM located in Berlin REP who had a partnership agreement for the devulcanization business with REP.

REP acquired the patented HSM devulcanization technology on an exclusive right basis, as well as the devulcanization center Watson-Brown HSM-Berlin. This center is equipped with an operational devulcanization line and a test laboratory operated by a team of 5 persons under the technical supervision of Mr. Thorsten WEGNER.



Dr. Thorsten Wegner, technical manager of the Berlin center and Jonathan Teixeira, devulcanization sales manager

The laboratory makes it possible to run tests on samples intended for customers who are willing to test the process based on their own compound, so as to validate the properties before running industrial HSM tests. The existing capacities allow to grant a service activity to all customers who want to devulcanize and reintegrate their scraps into production, in order to substitute them for

one part of the basic compound and by that drop its cost.

For companies interested in implementing the tests, a few kilograms of scraps will be sufficient to conduct the lab tests resulting in data on the elongation, tensile strength and rheology of the samples. After the tests the customer receives compound for assessment. It is then possible to conduct production tests to test the final parts on an industrial scale.

REP's goal is to carry on with the development of the HSM technology, its implementation in the center of Berlin and promote a sales offer of devulcanization machines and a



The Berlin staff



The Berlin lab

devulcanization service on the international market with compounders and processors.

Website: www.RepDevulc.com



OPEN HOUSE IN CORBAS

On the occasion of the preview of its new V510 machine and the anniversary of its partnership with the Taiwanese company Tung Yu, REP international hosted on June 17 an Open House at its premises in Corbas, near Lyons, reserved for customers.

Visitors could see firsthand that the REP group continues modernizing their production facilities at a steady pace by making major investments.



They could discover a lot of molding machines of the G9/G10 high-tech range:



Many specific products were shown: dual-compound machines, stripping kits for production in hidden time, CMS machines with one or two injection units.



Conferences were held in French and English.



The day of June 17 gave also to REP the opportunity to explain to its customers its partnership approach with Tung Yu and to celebrate their 10-year collaboration.



The evening went off in music in a festive and convivial atmosphere.





10-YEAR PARTNERSHIP WITH TUNG YU



Feedback

When 10 years ago the industrial relocation to emerging countries accelerated sharply, REP was trying to figure out how they could adapt to the Asian market and provide relocated customers with machines at a lower price. REP have definitely followed the line of partnership. For a medium-sized capital-goods-producing firm (which is such a fluctuating business field!), this was the best way to rapidly and safely set up a new offer, best-suited to markets. REP then began to search for a potential partner in Taiwan. It was through Mr. Brad Corbett, former CEO of the Hultec/Terramix group, that REP and Tung Yu first came into contact.

Two complementary businesses

Tung Yu being the market leader in compression presses with a strong presence on the Asian market was highly complementary to REP, the market leader in injection molding machines.

Very soon, discussions led to a partnership agreement based on two main axes: the sales and after-sales service of Tung Yu's

range of compression molding machines by REP on the one hand, and the shared manufacturing (partly in France, partly in Taiwan) of low-cost injection molding machines (first RTIP and later RT9) on the other hand.

"It was a real challenge [...]. Looking back through the pages of us working together, it was nice but not always going smoothly. A lot of dialogues and arguments occurred between us and also internally in our own companies. However, though the hard work, diligent and mutual understanding, we continue to move forward and achieve results beyond our expectations."

Quote from the speech of Tung Yu's president Chen Pin Yang, during the anniversary evening on 2014 June 17 at REP in Corbas.

"We achieved an unique and exemplary cooperation, which makes the old saying "when there a will, there is a way" full of sense. Now, let's turn towards the future and prepare the next decade in the same spirit as we did. [...] Dear Mr. Yang, I believe that we can make this 2014 year a record year in terms of business. This will be the best celebration we can offer to the 10th anniversary."

Quote from the speech of REP's president Tabar, during the anniversary evening on 2014 February 25 at Tung Yu in Taiwan.

Very positive results

10 years later indeed, the partnership has sold more than 1,000 machines, among which over 400 RT9 injection molding machines, the overall result is positive and justifies the continuation of this type of development. REP will further develop partnerships to implement production facilities in India and China to serve the needs of local markets, as they are unfortunately an unachievable target in terms of prices for products made in Europe and even in Taiwan. The partnership with Tung Yu will keep its rightful place in this international construction.

Each market has its own needs, sometimes even opposing. REP's ambition is to adapt their offer to each situation, neglecting none of these needs.



RT9 400 ergo machine, the most recent addition to the REP - Tung Yu range

LOOKING BACK IN PICS



2004: Start of the partnership



2004: 1st visit at Tung Yu - Ningbo



2005: 1st visit at REP international - Lyons



2010: K 2010 - Germany



2007: 25th anniversary of Tung Yu



2011: 2nd visit in Ningbo



2014: 10-year partnership celebration

RT: These two letters represent an extensive range: the "REP-Tung Yu" injection presses

With the adaptation of REP's injection technology to Tung Yu's press frames, the RT9s are designed for two markets:

- Traditional customers (European and North American) who, having relocated certain production lines, are seeking high-quality machines at lower cost;
- Manufacturers in emerging countries who

are looking to obtain more effective technical solutions for certain applications and at an affordable cost.

The RT9 is the latest machine in this range. It combines a REP Y-type injection unit with separate extrusion and injection functions and a 2-stroke or 3-stroke closing unit with closed-loop temperature control.

Of modular design and reduced space requirement on the floor, the RT9 presses are ergonomic and easy to maintain thanks to their access from the back side.

They are equipped with a CE cage for ultimate safety.

Specific versions

Finally to complete the range, the RT9 exists in J-version and in ergonomic version.

- **RT9ergo**: a 400 t machine with lowered working height
- **RT9J**: a compact machine with sword-type fastenings to meet the requirements of the Japanese market.



2005 RTIP

2008 RTAXS

2010 RT9

2011 RT9 J

2012 RT9 400 ergo

2014 Cake version!

REP offers all year long
TRAINING COURSES
 For OPERATORS,
 MACHINE SET-UP ENGINEERS,
 And MAINTENANCE TECHNICIANS

LEARN HOW TO OPTIMIZE
 YOUR PERFORMANCE!

Training Workshop
 "Running the Machine"
 or
 Training Workshop
 "Maintenance of the Press"

Program and duration
 can be customized upon request

REP TRAINING:
 The smart choice!



www.repinjection.com



**IMMERSION WITH
 THE AFTER-SALES DEPARTMENT**

REP International's After-Sales Department consists of 14 people who work under the direction of Mr. Alexandre DERU at the head office in Corbas and in connection with more than 40 technicians from the subsidiaries and service agencies so as to offer the best customer service on a just-in-time basis: on-site service, spare parts supply, technical assistance and training are the 4 main aspects of their activity.

Here is a chronicle of their daily activities, sometimes frenetic, sometimes exotic, but always with a view to customer satisfaction.

1 SPARE PARTS SUPPLY

Corbas, near Lyons
 Headquarters



Hi!
 Let's enter and say hello to
 Alexandre Deru, after-sales service
 manager for 2 years.



Bernard Ahronian is identifying
 a part on a spare parts board
 before sending an estimate to
 the customer...



The customer has
 placed the order,
 now Jacques
 Dalleau is promptly
 packing the
 spare part before
 shipping it!



While in Moscow, Mikhail Lyu
 is releasing a spare part from the
 subsidiary's storage too!

95% of parts dispatched
 to meet the deadlines
 imposed by the customer.
 4 million euros spare parts
 for after-sales in storage!



You'll have to
 return the board for
 damage survey!
 Viviane Billard, at the head office,
 on the phone with...



Josh Beachum, REP Corporation
 United States

2 ON-FIELD SERVICE INTERVENTION



You want to restart a machine that was relocated? OK, I'm sending you an estimate for on-site service in Morocco!

Didier Granjean is receiving a phone call from the company SACRED.



Nicole Bouchet has received the order from SACRED for an intervention in Morocco. She is booking the flight for Jérôme Constant who will head to Casablanca the very next morning!



Everything is okay!

Sacred plant, Casablanca - Morocco
Jérôme Constant has completed his work, the machine is ready for use.



Thank you for your efficiency, have a good flight!

Casablanca Airport, Morocco
Handshake at the airport, the customer is satisfied.

At the same time, at Schrader's plant in Pontarlier - France



Emanuele PIVA, a few hundred kilometers further, is arriving at the customer Schrader for commissioning a new V29 machine.

REP international's service engineers can operate everywhere including in France and abroad, providing support to the network.



Debriefing with the service engineers back from their intervention.



REP Aftersales Service, always in motion!

REP Deutschland - Germany

3 TECHNICAL ASSISTANCE

Brazil - REP Injetoras de borracha
Mauro Carvalho Service Engineer



Olá

We're facing a technical problem, but we'll find the solution!

José Garranas in Corbas, on the phone with Mauro Carvalho.

REP Italiana - Italy.
Antonella Vardaro is asking Didier Grandjean about a failure on a very old machine...



Didier is reproducing the same conditions on an equivalent machine for remote trouble-shooting.



TECCLI meeting at the head office in Lyons, in the presence of the Aftersales, Sales and Technical Departments to collect information about the problems experienced by customers and implement the required developments.

REP China - China



REP international - France

Upon the request of Zhang Yang and Li YongXiang from REP China, Serge Caschera is preparing a quotation for retrofitting a silicone stuffer after identifying all specificities on the machine with the Design Department.

4 TRAINING

REP training courses can be customized upon request



For customers or new recruits such as Sven Sauer from REP Deutschland - Germany.



Michel Garcia explains to training clients the advanced operation of injection molding presses.

Corbas, near Lyons Headquarters



Family photograph of the worldwide representatives of REP's agencies and subsidiaries attending a technical conference at the head office!

REP offers all year long
TRAINING COURSES
For MOLD DESIGNERS,
MOLD DESIGN DRAUGHTSMEN,
and METHODS MANAGERS



LEARN HOW TO OPTIMIZE YOUR PROCESS!

Training Workshop
“Adjustment of the Molding Parameters”
or
Training Workshop
“Process and Mold Design”

Program and duration can be customized upon request

REP TRAINING The smart choice!



RUBBER IN MOTION

www.repinjection.com



Technologies

NOVELTIES!



G10 *Ininitely Smart!*

INTELLIGENT
EFFICIENT
ELEGANT

A NEW RANGE

The G10 line is the 10th generation of REP's injection molding machines. Resulting from many years of improvement, these machines profit from our expertise based on more than 50 years' experience in the field of rubber injection. A double wink to its new ergonomic design and its embedded intelligent solutions, the G10 generation is branded "Ininitely Smart".

Our machines are known throughout the world for their rugged design, their dependability and their unrivalled injection technology. REP G9 and G10 presses constitute the bulk of our sales and are entirely "made in France".

The **V710** was the very first machine of this new generation. With a closing force of 500 tons, the V710 succeeds the V79 (500 tons).

With the new **V510** replacing the V59, we repositioned the range: its closing force is 300 tons (versus 250 for the V59).

Machines of this size occupy a market segment being much in demand and the V510 offers the same advantages as its sister model, the V710 in terms of energy efficiency and ergonomics.

The distance between columns is increased too so that one can not only mount V59 molds, but may also fit larger molds.

Core business

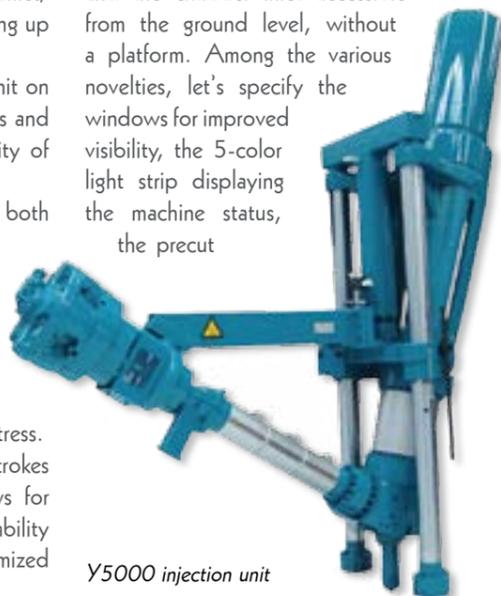
Equipped with the patented injection system which made REP's success, G10 machines offer a wide range of injection volumes/pressures - with the possibility of injecting up to 3,000 bar.

The accurate centring of the injection unit on the mold stands for unequalled tightness and shot size accuracy warranting the quality of the molded parts.

The 3-step closing unit combines both performance and rugged design: The clamping block system allows for a large opening stroke with a displacement speed much higher than the one of telescopic systems or other complex solutions. It needs considerably less maintenance thanks to low mechanical stress. The accuracy of the opening/closing strokes and clamping/unclamping strokes allows for the reliable degassing control and the stability of the whole unit guarantees optimized mold clamping.

Improved ergonomics

Accessibility has been improved on this new machine with optimized working height and the extruder inlet accessible from the ground level, without a platform. Among the various novelties, let's specify the windows for improved visibility, the 5-color light strip displaying the machine status, the precut

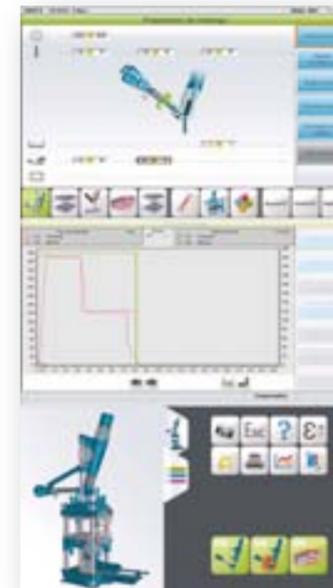


Y5000 injection unit

lateral cage for the installation of a fume extraction system, and the possible guard cleaning on both sides.

During the engineering phase, REP focused on clean components without lubrication and low risk of wear or leakage, in order to limit costly maintenance operations.

Last but not least, the G10 is equipped with a new intuitive and user-friendly multitask interface. The operator will be able to simultaneously display two screen pages on the big 21.5 inch 16:9 touch screen divided into two areas to set parameters, follow a trend or monitor a control.



G10 multitask interface



V710 500 T

CLOSING UNIT

Clamping force	kN	5000
Molds: thickness min. / maxi Without sliding platen	mm	215 / 545
Working height	mm	900

INJECTION UNIT

Volume	cm ³	from 1200 to 11000
Pressure	bar	from 2500 to 1500

V510 300 T

CLOSING UNIT

Clamping force	kN	3000
Molds: thickness min. / maxi Without sliding platen	mm	500 x 630 (630 x 630 option)

INJECTION UNIT

Volume	cm ³	from 600 to 2700
Pressure	bar	from 2500 to 1500



Embedded intelligent technologies

For the first time on a rubber injection molding machine, the G10 is equipped with predictive maintenance software. The machine will now be able to warn the operator of any possible component wear and anticipate the required maintenance operations to prevent the machine from failing. The autotuning function is another technological advance of the G10, automatically optimizing the setting of speed parameters. Finally, in order to allow for remote diagnosis and maintenance support, REP machines now have the capability to be equipped with a 3G modem for distant connection without requiring the internal customer network.

Energy Efficiency

The new G10 REP machines are equipped with an energy-saving package.



This solution focuses on three points: First of all the reinforced insulation between the traverse and the heater plate, which contributes to

reduced energy consumption of the energy dedicated to the mold heating by 16%.

Then the additional insulating mat of the injection unit, which allows for reduced energy consumption of the energy dedicated to the heating of the injection unit by up to 15%.

And finally the new servomotor-driven pump unit including a servomotor controlled by a variable speed drive and a constant displacement pump, which allows for reduced energy consumption by 40%. It further and above all allows for available power authorizing both full flow and full pressure injection without diminishing the machine performances.

THEY WORKED ON THE PROJECT

Éric Dénarié and Bruno Emerard
Mechanical engineering and R&D lab manager



DUAL-COMPOUND CMS: AN EXCLUSIVITY BY REP!



PRODUCTIVITY TO THE FOURTH!

The dual-compound CMS machine is an injection press with 4 rotating stations and 2 injection units allowing for the synchronous curing, stripping, and injection of 2 compounds in the same mold: that's productivity, versatility and flexibility!

The dual-compound or dual-injection CMS machine has become nearly a standard over the years.

Equipping an injection molding machine with a second injection unit has become customary to REP on all types of machines in all configurations since the G7 generation: injection from the top or the bottom, the back or the side, etc. REP can respond to customers' most complex requirements.

The user's objective is to produce parts integrating several compounds of various characteristics. The goal consists in combining technical performances at optimized costs: elimination of assembly operations and integration of a low-cost compound into a part, thus limiting the quantity of noble compound to the functional part only.

The dual-compound injection principle can be adapted to all injection presses, regardless of the size of the closing units and of the injection units.

REMINDER

The production of this type of dual-compound part may be performed using:

- Two sequential injections into two complementary cavities,
- Simultaneous injection into two different cavities or into two separate cavities of the part,
- Simultaneous (or offset) injection into one single cavity.

It is either possible to directly inject into the mold or through a special cold runner block (CRB) integrating several compound circuits.



Productivity and flexibility

By equipping the CMS for the first time with a second injection unit REP grants their customers optimized productivity and maximum flexibility.

First of all we want to emphasize that a CMS press - thanks to its four molds - allows for a much higher hourly production, which means a gain in productivity of 50 to 100%, than a single-station press of 400 tons.

Regarding flexibility the CMS is characterized by the quick mold change (10 minutes for the 4 molds), the possible deselection of one mold, the programming of different injection volumes and the adaptation of the stripping station to various kinematics.

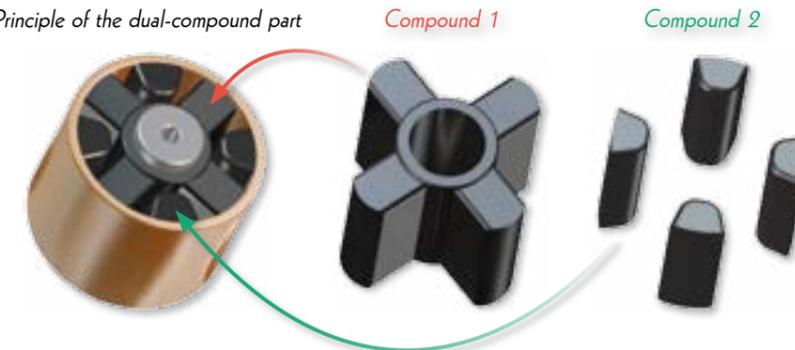
The dual-compound CMS press is not only dedicated to dual-compound injection: users can switch from simultaneous injection to sequential injection, or only use an injection unit if required!

Let's discover a more and more widespread application example: bi-compound bushing

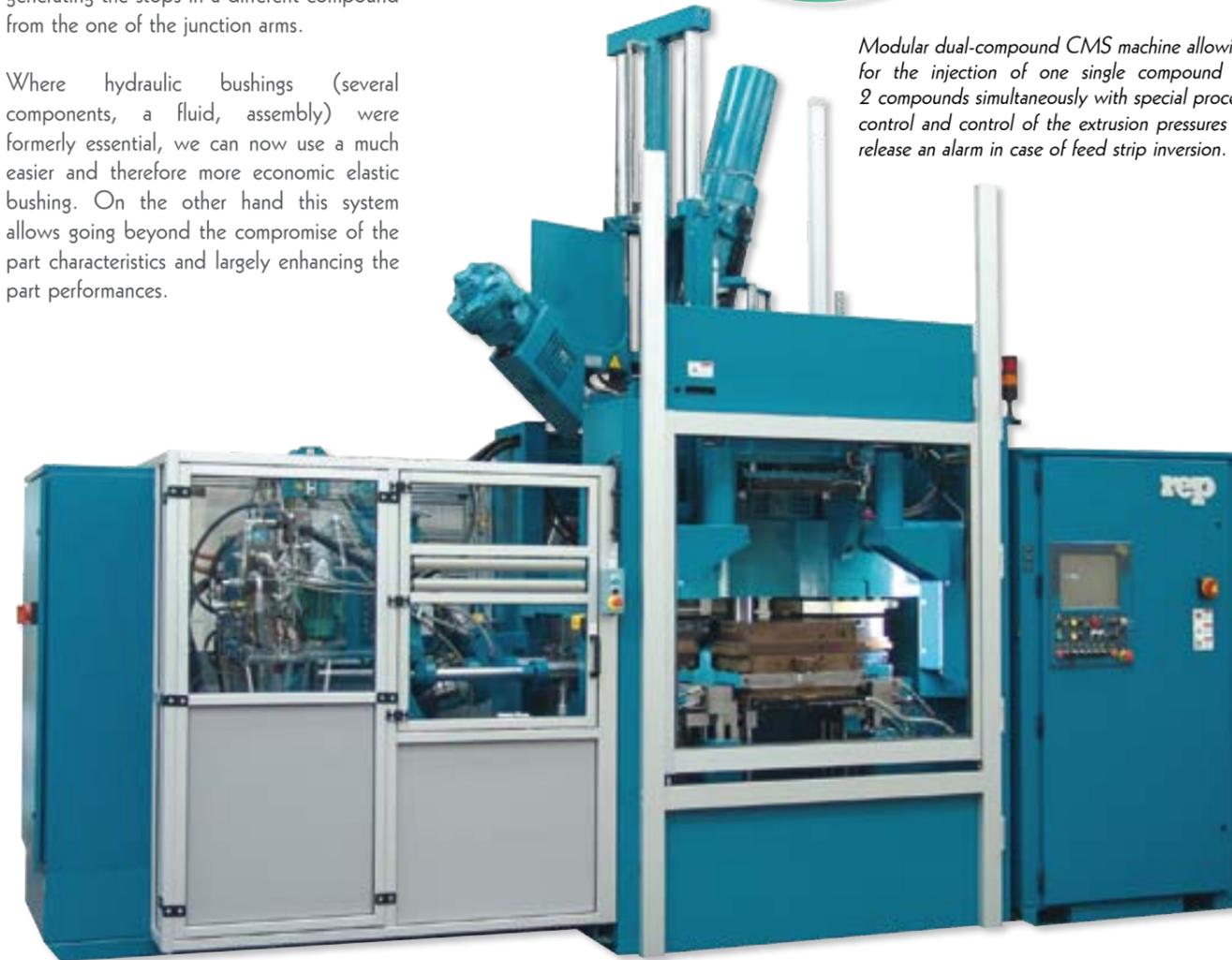
It includes an inside and outside tube. Molding the rubber part causes the two tubes to be linked by arms and generating stops. The use of two different compounds may allow adjusting the damping along the working axis using different rubber links or generating the stops in a different compound from the one of the junction arms.

Where hydraulic bushings (several components, a fluid, assembly) were formerly essential, we can now use a much easier and therefore more economic elastic bushing. On the other hand this system allows going beyond the compromise of the part characteristics and largely enhancing the part performances.

Principle of the dual-compound part



Modular dual-compound CMS machine allowing for the injection of one single compound or 2 compounds simultaneously with special process control and control of the extrusion pressures to release an alarm in case of feed strip inversion.



Mold with two sprue plates for the two independent compound circuits

What is the advantage of the CMS in the dual-compound application?

The injection of several compounds into the same cavity requires the perfect control of the compound flow and synchronization between the compounds. The CMS allows for enhanced productivity by limiting the number of cavities per mold, thus leading to a better control of the flow inside the cavity.

THEY WORKED ON THE PROJECT

Marie-Clarie Durand and Gilbert Arnaud
Software development and mechanical study





HSM devulcanization

A simple, clean and economic rubber recycling process:

THE SOLUTION TO YOUR WASTE DISPOSAL PROBLEMS!

A COST-EFFECTIVE ECO APPROACH



DEVULCANIZATION EQUIPMENT AND SERVICE OFFER

REP offers you a solution to valorize your production scraps thanks to a "green" process without chemical additives. HSM devulcanization technology makes it possible to turn runners, tear trims and other production residues into raw materials for direct recycling into production rather than waste. This process applies to any kind of cured rubber waste, provided it hasn't been contaminated by metal inserts, paper or any other compound-polluting substance.

Once the compound is devulcanized, it is reintegrated into the basic compound up to the percentage of generated waste for being partly used instead. This results in significant savings on both compound and waste disposal costs.

We offer a **devulcanization machine** developed by REP on the basis of Watson Brown's patent: the HSM machine to be installed in your plant can recycle up to 1,000 tons of compound a year. We further offer a **devulcanization service**, which means, we collect your production waste and deliver you a regenerated compound, which may partly be used instead of the initial compound in a new compound batch in keeping with the technical characteristics required by the initial application.

How Does it Work ?

Watson Brown have developed a patent for devulcanizing cured rubber. Controlling the strain applied to the compound by the HSM machine causes the rubber to be devulcanized

by preserving properties which are very close to the initial compound.



Devulcanization line of the plant Watson Brown in Berlin

This is a 100% thermo-mechanical process without adding any further substances or chemical agents. It is performed at low

temperature (approx. 80°C), in order to prevent the characteristics of the devulcanized rubber from being altered.

The compound may be pre-treated in a breaker, in order to get pellets of around 1 to 2 cm. The compound is transported by a conveyor to the HSM line for a 5 to 8 minutes treatment before being discharged on a conveyor towards a cylinder-operated refining blender. The latter will terminate the process and homogenize the compound. After this step, another conveyor will take the compound to a cylinder-operated finishing blender for shaping it to plates (similar to those of the blank compound), ready for easy transportation and storage.

The HSM installation is built on a 4-column

frame according to REP's closing unit principle. It is based on a rotor/stator torque combining vertical and rotary movements. The rotor and stator profiles shear the compound, and through multiple microcycles selectively break the bonds between the elastomers without breaking the chains. The different parameters depending on the treated rubber (spacing of the cones, speed, change in the rotation direction, cycle time) are adjusted during a preliminary test setting phase.

The results

The mechanical properties of parts, which are processed from rubber, which is partly composed of devulcanized compound, generally observe the values required for a recycling rate corresponding to the waste percentage of the compound concerned (10 to 40%). Under these conditions it is possible to reuse these scraps, and once being retreated to substitute them for the blank compound. The rheological properties, breaking strength, elongation, compression set and viscosity allow for the validation of the industrial specifications with only low or no adaptation of the formula in most cases.

Vocabulary

Elastomers form a network of covalent irreversible links; they are unsolvable and infusible and can therefore not be shaped directly.

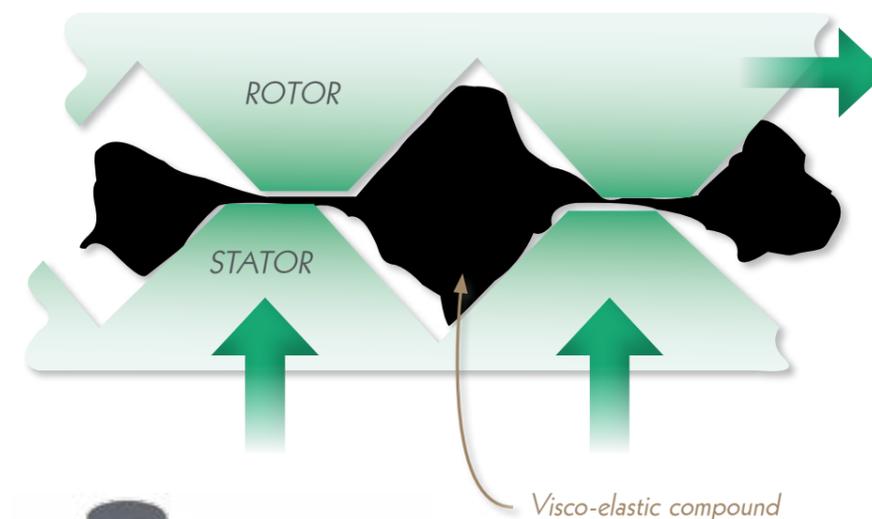
Recycling elastomer waste is usually limited to energy recovery (incineration for energy recovery) and material recovery (scraps are crushed and reused as fillers in various matrices). However, these channels are not perfect; that's why various studies aiming at undoing more or less perfectly the elastomer reticulation to foster their properties for later use have been observed for decades.

Certain elastomers (NR...) are reticulated using sulphur; that is what we call vulcanization and the reverse operation is called devulcanization. We want to point out here that these terms have been extended to all elastomers, even to those where no sulphur is used.

HSM devulcanization Not to confuse with crumb rubber!

Most of the current recycling techniques produce more or less small sized crumb rubber types. They can be reused in a few applications in low proportions (often less than 5%) and rather correspond to a filler substitute. The stake for REP therefore consisted in developing a solution generating a much more important technical, economic and ecological potential.

The HSM technology



3D view of the devulcanization machine

From the Sales Manager's Desk



Stéphane Demin
Market Development
Director

"REP enters new terrain of innovation to tackle the widespread problem of rubber production waste management using the new HSM devulcanization process. Innovating for years in the field of waste reduction we state that the solutions to implement to work towards zero waste are more and more expensive regarding both investment and maintenance. Reintegrating the generated waste into production appears to be a logical complement to the panel of solutions proposed."

Website:
www.RepDevulc.com



MODERNIZING PRODUCTION FACILITIES

ACQUISITION OF A LARGE CAPACITY MACHINING CENTER

The REP group continues modernizing their production facilities at a steady pace by making major investments. The overall investment in the modernization of their plant in Corbas and in the product developments initiated, represents almost 4 million euros. A new machining center of the last generation is going to complete the existing capacities in 2014. Gains in responsiveness, productivity and operation costs are expected.

The new horizontal 4-axis NC machining center of more than 70 tons is designed to process loads up to 5 tons. At a time when REP expects an increase in their sales of 15 to 20% in 2014, this new tool should in future reduce the parts availability deadlines and grand high quality and high precision machined parts.

Palletizing unit

The machining center is equipped with a palletizing unit which allows - like all our currently used machining centers - preparing the parts to machine and loading them into the machine in hidden time. The palletizing unit is equipped with storage stations of a capacity of 10 machined parts or parts in the waiting loop for machining. This system helps the machine work autonomously, including when there is no operator during nighttime.

Tool magazine

The new production facility is equipped with a tool magazine, which in turn includes a machinery management software allowing for the operation of 570 cutting tools. The operating tools may be up to 800 mm long, 420 mm in diameter and weigh up to 35 kg.

Numerical control

Thanks to a modern programming technique the numerical control of the machining center allows for recording up to 1,000 machining programs simultaneously, thus granting high operation safety.

Characteristics

This machining center is designed to process loads up to 5 tons on pallets of 1,250 x 1,250 mm.



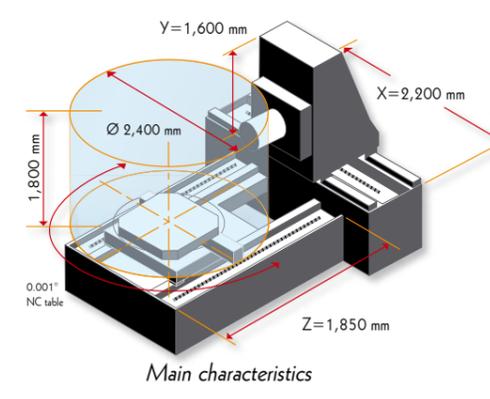
Front view

Record beaten

It is the biggest machining center of this Japanese machine manufacturer's range and will be the first one of this size ever installed in France!

This unit of more than 70 tons will cover a length of more than 23 m and a depth of more than 19 m in REP's machining workshop!

The capacities along the axes X (width), Y (height) and Z (depth) respectively amount to 2,200, 1,600 and 1,850 mm, i.e. 30% more than those of our currently used machines.



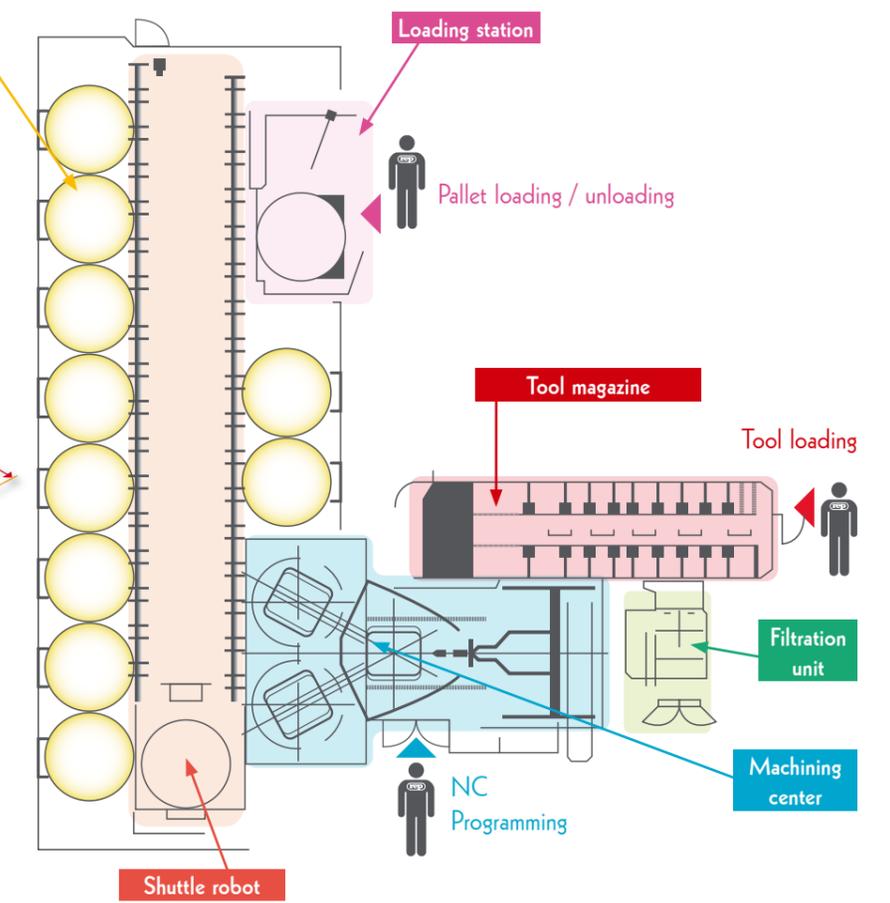
Main characteristics

The pallet approach distance to perform by the tool drive spindle amounts to 200 mm along the Y-axis and to 100 mm along the Z-axis. Moreover, the rotary table system allows for precise positioning to a thousandth of a degree along the B-axis (rotation around the vertical axis).

As far is concerned the work speeds, the spindle operates at a torque of 1,009 Nm and a maximum rotation speed of 6,000 rpm. The work speed (displacement speed of the cutting tool in touch with the part being machined) varies up to 30 m/minute.

Did you know ?

The spindle is used to house the so-called "cone/face" tool holders, which means with a perfect contact surface between the cone-shaped tool holder and the spindle. This technology results in high-precision machining operations, even when using very long tools.



Top view of the whole process and locations of the control stations



Hervé REVEL
TECHNICAL AND INDUSTRIAL DIRECTOR

was so kind as to answer our questions, with the participation of:



Jérémy MAZUYER, Engineer student apprentice of "l'École des Mines in Saint Etienne", dedicated to 100% to the project.

Hervé REVEL, the purchase of this machining center represents a significant investment and will considerably impact the configuration of the plant. Would you please tell us a little bit more about the ins and outs?

H.R. This is a strategic choice of renewal for REP, as we want to keep an internal means of expertise and flexibility. The old machines TC630 and TC1000 will soon be at the end of their lifespan and will be operated for another few years, but at medium-term they will necessarily be dismantled.

What is the most significant difference between your old machines and the new one?

H.R. Apart from the fact that the new machining center is ultramodern, the most important difference lies in the increased capacity regarding the weight and dimensions of the parts. We double the size and we are more accurate while achieving increased productivity by 30 to 40%.

Does the new center require redefined machining methods?

J.M. All parts processed on our old machining centers can be machined on the new one without fundamentally reviewing the manufacturing methods. However, with the integration of this new process we seize the opportunity to make our methods progress using ingenious and resourceful tools on certain parts.

What are the benefits the final REP customer may expect?

H.R. Benefits in terms of a better control

of the delivery times and mainly in terms of responsiveness, as the center is highly flexible thanks to its pallet magazine. It is for example possible to put aside a running series to machine an urgent part. The customers' deadlines themselves will not necessarily be reduced considering that the major part of the manufacturing time is linked to mounting, connection and test operations; but we can better manage our priorities.

Regarding special presses, specific components may be machined in between the production schedules without too much interfering with them and without delaying them.

J.M. I would add that a flawless part is a part that fully meets its function in the final product. If the bores of the traverses for example are perfectly drilled, the clearance provided for the lead-through of the columns is under full control and the whole closing unit of the press will make sure its operation cycles without any fault and without premature wear.

Is there a specific training required to work on this new machining center?

H.R. Training sessions on programming, production management and maintenance have been and will be granted to the whole staff likely to be involved in the process. It means upgraded expertise for all people involved.

Will the new center operate around the clock?

H.R. Yes, it will. Thanks to the automated palletizing unit the machine can operate round the clock while the operators are working in two shifts only. It works fully autonomously beyond one shift chaining different parts thanks to the automated palletizing system.

What is the impact on the machining sub-contractors?

H.R. We continue to involve our sub-contractors, especially in parts of low strategic impact, which do not question the company's know-how.

However, this modernization of our production tool will oblige our sub-contractors to upgrade their facilities and follow us on the way to performance.

The last word to you Mr. Revel?

H.R. The purchase of the machining center is the most obvious sign of the modernization of our production tool, but it is part of our willingness of overall renewal. Let's mention among others the hoisting cranes, the new paint spraying booth, the overall esthetic revamping of the workshop with the refurbishment of the floorings and hallways, the sanitary facilities, the awnings with the new REP colors without forgetting the renewal of the staff with the integration of multiple in-service trainees for more versatility and increased staff expertise level. It goes without saying that the investment is considerable, but it perfectly meets the requirements regarding precision and reliability REP is bound to.

We manufacture highly advanced machines and therefore we can't help but match our resources to the market requirements to keep going ahead.

Gabriel IACHINI's word,



Manager of REP's machining workshop

The new machining center is designed to use higher-performing cutting tools and can replace all our machines from the smallest to the biggest one. There will be less control operations thanks to the tool break detection and the electronic control inside the spindle for the measurement of the strain. The center is equipped with the most advanced embedded technologies, such as for example the in-process supervision of the tool wear thanks to the tracking of the spindle power requirements. These technologies prevent deviations in machining and by that dimensional faults.



Gabriel IACHINI and his machining team



View of the tool magazine



View of the storage station and the shuttle robot

Inject some pep in your step!

Special Applications

REP, the smart choice



SPECIAL PRESSES FOR BLADDER MOLDING

REP has a team of engineers working on the design and production of optimized molding presses intended for special applications. Bladder molding for the production of tires is one of them. REP has supplied injection molding presses for bladder molding applications to the biggest manufacturers for thirty years.

What is a bladder?

A bladder is a rubber-made curing bladder used for tire curing. The bladder is placed inside the "green" tire (uncured) which in turn is placed in a curing mold. When the mold is closed, the bladder is inflated by steam injection, in order to cause the uncured tire to be pressed against the inner curing mold surface while being heated up. The bladders of variable shape and thickness depending on the type of tires (generally from 4.1 mm to 9.1 mm) were usually compression molded.



REP Press Bladder S22



MATTHIEU WOLFF,
PROCESS DEVELOPMENT
MANAGER, explains why to prefer injection for the

molding of bladders.

Injection molding has many advantages: as the compound is already heated and stressed inside the extruder, both the cycle time and degassing cycles are reduced. There is less waste. Finally, we can better control the compound flow inside the mold, which is the guarantee for regular bladder thickness. I want to point out here that a compression-molded bladder usually is between 6 and 7 mm thick, whereas an injection-molded bladder is between 4 and 5 mm thick only. Reducing the thickness allows for a more homogeneous pressure distribution against the tire when inflating the bladder. Among other advantages we can mention the consistent surface quality and the improved mechanical properties, which

are particularly important when considering that bladders must withstand temperatures of around 180°C and pressures of 25 bar during the whole curing time of the tire (i.e. an average of 15 minutes for a light vehicle tire). Injection molded bladders have a more extended lifespan, up to 500 tires or more. Our customers are unanimous: One of the most important tire manufacturers who has bought a V89 Y85 press recently stated that he can mold 25 bladders per shift without any problem with a low reject rate of 0.5% and a much higher bladder quality than those bought off-the-shelf before.



Open bladder mold



Example of a closed bladder

Moreover, the easy use of REP presses is very appreciated as it enables operators to easily and efficiently handle them.

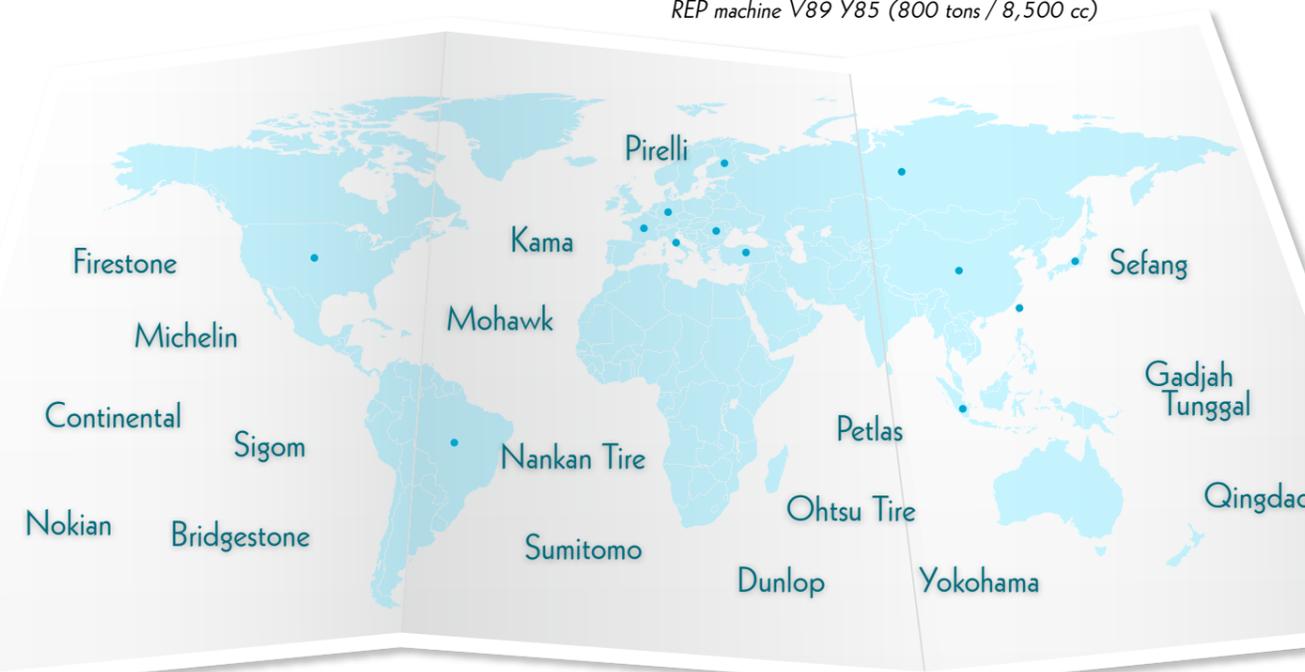
The bladder press range

REP regularly manufactures presses for bladder molding applications (for open or closed bladders) with a closing force of 800 to 2,200 tons. An injection pressure of 1,500 bar is usually said to be sufficient, as the compound used for bladders doesn't require high injection pressures. The injection volume may be up to 25 liters in standard applications.

The particularities of these presses mainly focus on the central top and bottom ejectors, the adaptations for the mold heating and the much higher mold thickness and opening stroke characteristics than for most of the remaining applications.



REP machine V89 Y85 (800 tons / 8,500 cc)



Location REP presses: Worldwide references



PHARMA CHALLENGE

How to produce annually 240 million pharmaceutical stoppers using automation processes ?

That's the challenge REP took up for a leading company in the field of injectable drug packaging.

The customer's demand

The challenge consisted in providing a turnkey solution for the production of pharmaceutical stoppers on injection molding machines in a controlled atmosphere. The goal of the fully automated solution with integrated robot for the stripping of the parts was to produce 240 million stoppers of a diameter of 13 mm per year.

Major difficulties and challenges to cover with regard to the injection of these parts

These parts must absolutely be cut to exclude any risk of flashes and allow for fast stripping. No gate marks are allowed in the centre of the part. The compound formulations used require multiple degassing even during the beginning of the curing phase.

The injection molding process leads to shrinkage giving the parts an oval shape, as the process consists in molding a mat and compound feeding is circular.

Moreover, problems such as air encapsulation, marks and burned spots are very critical on the bottom of the cavities where compacting sometimes is difficult. Pharmaceutical stoppers are generally molded on compression molding presses with big platens and several stages for improved productivity. However, compression molding requires the calibration of the compound plates (blank) for constant thickness, which is an expensive operation.

The solution proposed by REP

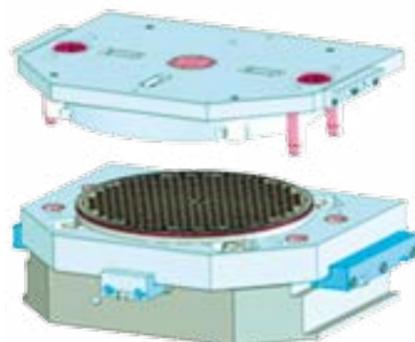
The injection-compression molding solution proposed by REP consists in producing the stoppers on 2 fully-automated multistation CMS-type machines equipped with 8 molds. Please note that the CMS machine, an exclusivity by REP, is an injection press with 4 rotating stations: injection, curing and stripping are synchronized for optimized productivity.

Thanks to the ergonomic design, CMS machines are flexible and easy to automate.

Automation has the advantage that any risk of human contamination is eliminated on all stations (compound preparing, part stripping and transfer to the cutting tool).



The part: pharmastopper



3D-view of the injection-compression mold, 413 cavities

Please note that the unit is operated in a controlled atmosphere where production constraints are particularly stringent.

A turnkey project thanks to REP's partner network

Regardless of the customer's requirements, we endeavour to define the best solutions for each application by involving - if necessary - our partners located in the close vicinity of the customer for optimized responsiveness and dependable customer care. Whatever the application, we work with the expert in the field.

In this special case, an injection-compression mold prototype of 420 cavities has been performed to approve both the injection molding process with the customer and the CMS kinematics. Once the prototype has been approved, 8 molds of 413 cavities have been performed. Injection takes place inside a vacuum bell.

Concurrently, a complete automated unit of reduced space (4.9 m x 7.9 m) has been performed. It includes among others a robot allowing for the pick-up of the injection-compression molding mat at the discharge end of the mold, the atomization of a stripping agent on the 2 bottom and top parting lines, the cutting of the feed sprue and the deposit of the mat on a conveyor, in order to take it to the cutting station for the separation of the parts and the mat in compliance with the customer's specifications.

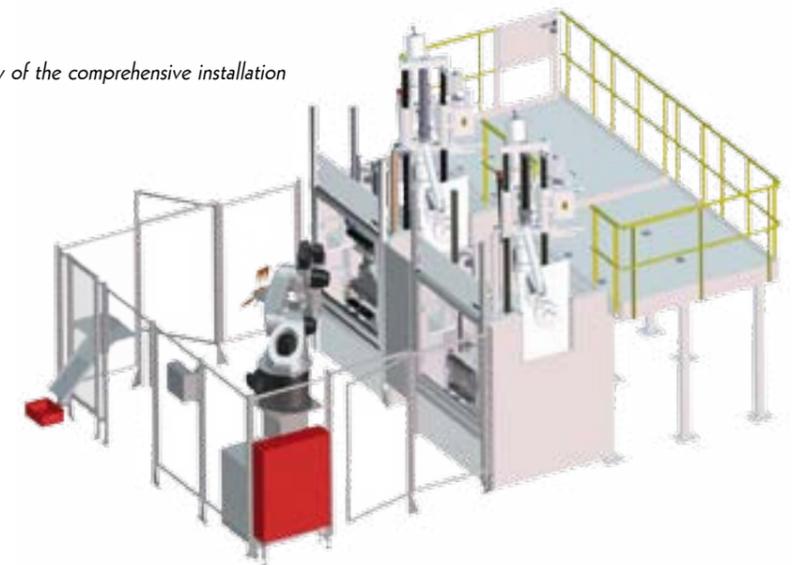
Convincing results

Thanks to the injection-compression molding on the 2 CMS machines, the customer can now produce 41,880 parts/hour with a



View of the robot during the stripping phase

3D view of the comprehensive installation



An exemplary collaboration

The development of this unit has been advantaged by a very good understanding and collaboration between the customer, REP Corporation (REP's subsidiary in the USA) and REP international. In association with the mold manufacturer and integrator, this team work was one of the keys to success.

machine cycle of 71". Considering that the first test phase was successful, they could expand this new process, as beside the fact that there is no human contamination, there is no doubt that REP's automated CMS solution is proven to be profitable. In fact, it eliminates the blank preparation process, thus reducing the costs and waste-generating variations.

A positive balance

Thanks to the automatic unit:

- Reduced labor costs
- Regular process

Thanks to the elimination of the blank preparation process:

- Reduced waste
- Reduction in cost



Robot for stripping

THEY WORKED ON THE PROJECT

Ludovic Zucchi, Christian Fuentes and Tim Graham
Automation Engineer,
Manager of the Application Lab
and CEO of REP Corporation





YOU'LL FLIP!
A PRESS WHICH TILTS TO 25°... WHILE THE MOLD CONTINUES TO BE HEATED UP!

CUSTOMER FEEDBACK

Tung Yu compression press for composite molding: the biggest press of this type in the world!

Courbis company purchased several REP presses for the injection of silicones in the 1990's and a Tung Yu vacuum compression press in 2012. When there was a need to buy a specific press for their plant in China in 2013, they naturally turned toward REP.

Roland PERROLIER, Industrial Manager of the COURBIS Group witnesses as follows: "REP extended their range through the partnership with Tung Yu, a Taiwanese manufacturer of compression presses. We were lucky to experience the quality of the Tung Yu presses during a visit on the site of REP. Our test runs on a demo press at REP were largely convincing and we awarded another order for a TYC-V-14-2RT-S-PCD (CE) press.

In 2013 the decision was made to set up the new productions in China due to the need of customer vicinity and the shipping problems of our products. Our parts produced in France are indeed very bulky and particularly sensitive to scratches, we had to find a solution! Encouraged by our experience with the



Stewart Knight (REP) and Roland Perrolier (COURBIS) an exemplary customer-supplier relationship

Tung Yu compression press, we submitted our specification for a very specific press intended for the molding of site vehicle engine hoods of 2 m x 1 m x 1 m and 30 kg.

Considering the complexity of the parts at low-pressure injection and a relatively low closing force, the press needed to "tilt" to let the flue gas exit through the parting

line and allow for optimized filling and a bubble-free part. After several project reviews following the discussions with the engineers of REP and Tung Yu, the press was ready within the deadlines defined. During the FAT at Tung Yu, we could run the tests with our own mold and discover its operation far beyond our expectations, mainly in terms of process control. The press was shipped with its accessories without any problem. Installed and commissioned in January 2014, our local technicians could easily get familiar with thanks to the simplicity of its controls and the memorization of the molding parameters. Very satisfied, we turned again toward REP for our next step, the production in Brazil starting from 2015."

Do you know Telene®?

TELENE® OR "A THERMOSET FOR HIGH-STRAIN APPLICATIONS"

Telene® is a thermosetting resin used in the manufacturing of largely sized parts of complex shapes.

We actually talk about Polydicyclopentadiene (PDCPD) used for the production of large parts (up to several hundred kilograms per injection) thanks to its mechanical, thermal and corrosion-resistant properties. Associated with the RIM process (Reaction Injection Molding), PDCPD is used today by manufacturers like VOLVO, CATERPILLAR, JOHN DEERE or MERCEDES to produce car body panels in an economic way. Courbis Group is one of the pioneers in processing PDCPD across the world. Courbis Mastershock has dedicated its development to the RIM PDCPD in close collaboration with Télène SAS for approximately twenty years.

THE MOLDED PART



THE FINISHED PART

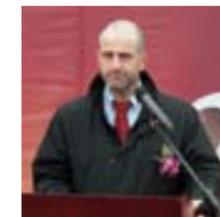


Engine hood of Caterpillar® made of Telene® produced by Courbis on a REP-Tung Yu press

CONVERGING VISIONS ON THE SET UP OF A MEDIUM-SIZED COMPANY IN CHINA

REP and COURBIS, two companies of similar size on parallel paths

While REP is starting to produce in China for the Chinese market, **HERVÉ COURBIS, CEO OF THE COURBIS GROUP**, is willing to answer our questions.



Hervé Courbis during the opening ceremony of Courbis China Ltd.

REP: Mr. Courbis, your company has been set up in China since 2007. What do you keep in mind from these years of activity?

H.C. We came to China to accompany one of our key account customers who had asked us to supply parts produced in China, in order to minimize costs and meet orders within reasonable deadlines. Our location in the area of Beijing met a local demand and the production today is still turned toward these Chinese customers. Our added value on the Chinese market consists in offering high-tech products and a guarantee of quality. We state that the local demand is considerably

growing, that's why we decided last year to extend our product range and increase our production capacity, in order to meet the inquiries of our key account customers. We are concurrently developing our Chinese customers. The balance of these 7 years spent in China is therefore very positive.

REP: What kind of difficulties had you to face when setting up your plant in China?

H.C. Between our first settlement in 2007 and the extension of our activity to the Mastershock products in 2013 we noticed that the Chinese authorities had toughened their environmental regulations resulting for us in a few adaptations.

REP: What is in your opinion the key to success to set up in China?

H.C. The key probably consists in developing good relations with the local authorities, in binding and training the teams and in being patient. The Chinese market is a promising, but complex and ever moving market; that's why we shouldn't expect a fast return on investment. Sustainable efforts will be worth the investment.

Partnership REP - Tung Yu

REP's added value:

- Understand the customer's need
- Offer solutions
- Provide after-sales service

In the case of Courbis' compression press, the technical specifications were indeed an outstanding challenge:

- A compression press with a closing force of 250 tons with platens of 3 m x 4 m and an opening stroke of 3.20 m
- A press which tilts to 25°...while the mold continues to be heated up
- A shuttle table
- A 2 m deep pit.



Courbis pit

From the Sales Manager's Desk



Stéphane Demin
Market Development
Director

"The compression presses - thanks to the partnership with Tung Yu - enable us to offer

rubber processing companies alternative solutions, as compression remains in particular cases the most suitable solution.

These presses also have a certain success when being used with other materials, such as composites. This offer ranks quite well with a competitive quality/service/price ratio."



SYNERGY TO BETTER SERVE CUSTOMERS

REP relies on a network of experts to cope with any market demand. Whatever the missing link in your global project, we have the solution!

The missing link may be a cold runner block or a fully automated solution, a mold or peripheral equipment.

As proven in the projects and special applications described on the previous pages, REP and its Process Engineering and Development department are always ready to perform feasibility studies, performance tests, general mold flow charts and production studies for the customers.

Shared expertise

Thanks to our database including 13,000 studies, we can direct your choice by defining the best solutions for each specific application. These solutions may be tried out under semi-industrial conditions in our test laboratory on all press models and over 40 molds. But we also rely on a network of partners:

a win-to-win approach for our customers' greatest benefit who can profit from our widespread experience and know-how.

The example of REP Italiana and Tecnistamp

Tecnistamp is an engineering firm in Corte Franca (Brescia). They design and build molds for seals and other technical items made of rubber or thermoplastics, mainly for the appliance and automotive industry on the Italian and European market.

REP Italiana and Technistamp have signed an agreement which consists in renting a REP press. The machine is a V69 vertical press with a closing force of 400 tons and an injection unit of 2,000 cc at 2,000 bar.

Thanks to this winning combination, Tecnistamp will be able to test the molds they produce directly in their premises prior to the delivery to the customers and REP in turn will have the opportunity to provide customers with "turnkey solutions" and presses equipped with already-tested molds.



Giovanni Zanini and Roberto Sandrone in front of the REP press

REP: A COMBINATION OF FORCES



"The wind in co-operation with the sea is a combination of forces. A ship is a combination of appliances. Forces are machines of infinite power. Machines are forces of limited power. That struggle which we call navigation is between these two organizations, the one inexhaustible, the other intelligent."

Victor Hugo, Toilers of the Sea



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RUBBER IN MOTION

