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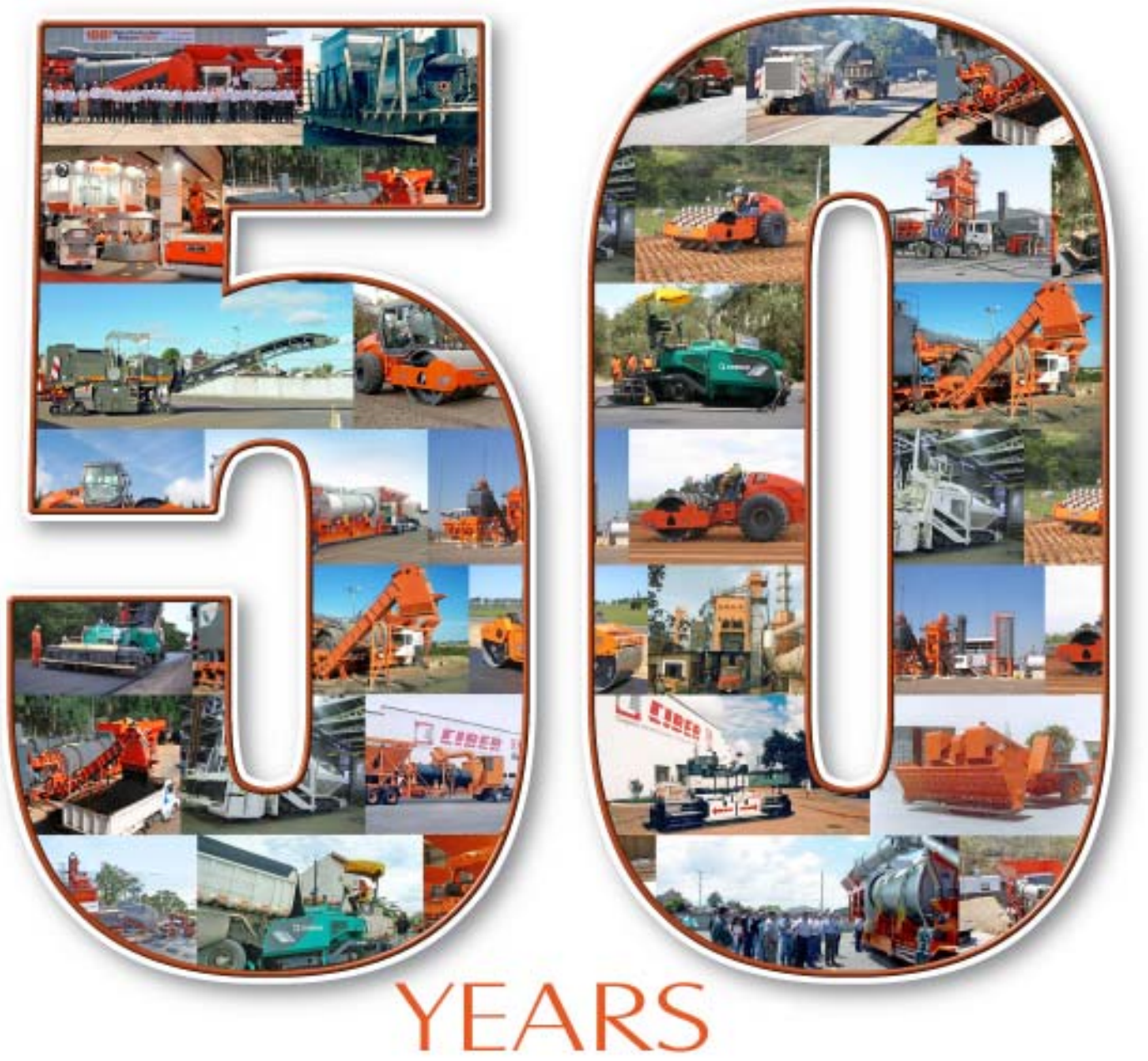
- **Technology** Advantages of the W1000L and W1900
- **International** Ciber Plant in Trinidad and Tobago



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Ciber celebrates a half a century in 2008

The company celebrates the positive numbers and leadership in the national and international market

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UACF 17P-1 in activity in Peru

The equipment is being used to rehabilitate a highway in the north region of that country. Plants and pavers are the machines most sold by Ciber in the Peruvian market.

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OPINION

Time to celebrate

Walter Rauen de Souza
Director-President of Ciber

Ciber celebrates in 2008 half a century of history. Many facts marked the trajectory of the company and one of the most important points was our internationalization after the acquisition by the Wirtgen Group. We began to have access to world-class technology and this ads value throughout the company's entire process: from product design to industrialization.

This also called for a great effort and systematic and organizational changes. All-in-all, though, it was worth it. We guaranteed competitiveness and leadership in the market, reaching sales last year 22 times greater than ten years ago. In the last four years alone we grew more than 380% and today we represent around 5% of Wirtgen's global earnings.

Ciber is always in transformation because to maintain an annual growth greater than 35% we cannot stop adapting our structure to the challenges that the market sends our way with every turn of the corner. We recognize that the seas will not only be smooth sailing and without difficulties to be overcome in the future and that is why Ciber is a company that invests heavily in the area of research and development of new products. Certainly our customers will be benefited in the years to come with a great array of new products and state-of-the-art technology with a very attractive cost-benefit relation. Companies are continually more competitive and to not stop in time is decisive for us to celebrate another 50 years in the future.

Compactors have a part in building a hydroelectric plant

Two Hamm rollers are working on the Alzir dos Santos Antunes Hydroelectric Power Plant named UHE Monholinho on the Passo Fundo River between the cities of Nonoai and Faxinalzinho in the northeast region of Rio Grande do Sul (BR). The equipment was purchased by the Toniolo Busnello general contractor with Headquarters in Porto Alegre to help build the rock-fill dam of the power plant and compact 1.3 million cubic meters of rock along a strip that varies from 100 to 140 thousand cubic meters a month.

The compactors started up operations in January and have operated continuously without stopping for unscheduled maintenance. "Other than the periodical standard check-ups, there was no problem that brought us any discontentment." The equipment is meeting our target in terms of work volume," says Arno Busnello, the director of Toniolo Busnello. The forecast is that this job will take 21 months.

This building project generated approximately 750 direct jobs in the region, and the plant will generate more than 67 MW of energy for the national energy sector.

Job Site in the State of Rio Grande do Sul

Hamm roller at work in the South of Brazil

J. Malucelli General Contractor located in Curitiba (Paraná) in the South of Brazil purchased a Hamm 3411 roller produced by Ciber and part of the Hamm 3000 series. The equipment is being used to build a Small Hydroelectric Plant (SHP) in the city of Cotiporã (RS). The construction began at the end of 2006 with setting up the job site facilities and the project is scheduled to end in October 2008. According to Douglas Emerson Moser, an engineer at J. Malucelli General Contractor, the roller had an excellent performance, meeting the compacting criteria and reaching an ideal level of RCC mixing homogeneity. The output power for the Cotiporã SHP located on the Carreiro River is 19.5 MW. Hydroelectric plants of this size are built within a short time and offer the benefit of generating energy with low environmental impact.

Público acompanha palestra no Rio de Janeiro

Seminar discusses recycling techniques

On March 27 Ciber Equipamentos Rodoviários along with its dealer in Rio de Janeiro, Indústria e Comércio Decker do Brasil, held a Seminar on Modern Cold Recycling Techniques of asphalt pavement. The meeting took place in the State Highway Department of Rio de Janeiro bringing together 100 professionals from the sector.
Ciber's Director, Clauci Mortari, talked about the array of the Wirtgen Group's equipment for recycling. The technology of the KMA 200 cold recycling mobile plant and other technological trends for the segment available in Brazil were also presented. The public was also able to add to the lecture some practical experiences about paving recycling using the foam-cement asphalt technique.

Deutz: tailor-made engines

Since its beginnings, Ciber has maintained an important partnership with the German engine company Deutz. Its concern in developing independent and personalized products give this factory a unique characteristic: produce tailor-made engines. It is unique aspects such as this that put Deutz in a situation of prominence in the national and international market, offering quality and greater functionality to its customers' equipment. The joining of efforts has worked out well. "When it comes time to build an engine platform we discuss with our clients' engineers the details so that we have an idea about the product's characteristics depending on the specifications of each machine, application, and environment," explains Sérgio Latini, Deutz's Director in Brazil.

Another point in common is the demand on Ciber's, Hamm´s and Wirtgen´s parts for engines that follow the worldwide pollutant emission standards, which is a demand Deutz is fully in compliance. "Furthermore, the engines have a high thermal efficiency for their capacity, which results in fuel saving. This is a distinct advantage of the Group's equipment," affirms Latini.

Training in the North and Northeast of Brazil

Concerned with its internal and external public, Ciber invests heavily in customers, employees, and sales reps. It shows this by developing training courses for taking technical knowledge to these different niches. More than selling, the company wants to offer support in all the phases of the negotiation.

In the city of Ananindeua located in Greater Belém (PA) in the north part of Brazil, the partners Deltamaq (the company representing Ciber in the region) and its respective employees in the administrative and technical areas received training from Ciber's Application engineers Rodrigo Pereira and Cristiano Lameira. The event took place on January 26 and saw 20 people in attendance. One of the themes addressed were the advantages of using the Ciber pavers and its competitive differences. The group also had the chance of participating in one of the lectures about the basic notions of asphalt compacting and the technology of the Hamm compactors.

On January 29 it was the turn of the general contractors, building companies, and representatives from the 1st Regional Air Command (Comar) and the Commission of Airports in the Amazon Region (Comara) to participate in a recycling meeting in Ananindeua. At this opportunity, Lameira presented the line of Hamm compactors and reinforced the brand in the region: "The danger of damaging the structure has always been a limited use of vibration on bridges. The growth in infrastructure in the Amazon obviously implies in the building of roads and bridges since the region has the largest river basin of the planet. The exclusive technology of Hamm oscillation ensures effective compacting more quickly and safely, without damaging the bridge."

Ciber's general contractors in Ceará, a state in the northeast of Brazil, came together for training on January 23. These participants were also able to get to know more about the Hamm compactors.

Ciber's clients and sales reps in training

Plus Series pavers: more safety and productivity

The equipment presents **advantages** such as the **intelligent automation system**, higher technology, and capacity to meet different **applications of pavement**

The Pavers AF 5000 Plus (on crawler tracks) and AF 5500 Plus (on tires), produced by Ciber Equipamentos Rodoviários in Porto Alegre, a city located in the south of Brazil, bring technological innovations that increase productivity and safety. One of the innumerous advantages of the Plus Series is the intelligent automation system.

The machines are used for paving city roads, airports, as well as municipal, state, and federal highways. They have the capacity to spread up to 450 t/h for pavements, 2 to 30 centimeters thick, at 1.9 to 5.3 meters wide.

This equipment comes with the general standard of components which unifies the new identify of Ciber pavers. The changes in the chassis design had the purpose of meeting the requirements of the various pavement applications such as the stabilizing bases used in bases and sub-bases. The new design makes it possible to alleviate tensions, distributing the efforts more uniformly along the chassis.

The control system is totally innovative and modern with an ergonomic panel, as well as a display for monitoring the functions and management by controlling modules through the Canbus-type system. The Plus Series pavers also come with a protective canopy that keeps the sun rays off the operator. This canopy is made of resistant material with side flaps to fully protect the operation area.

What the customer gets

Here are some of the advantages that come with using the Plus Series pavers:

- Higher technical capacity
- Greater durability
- Robustness
- Reliability
- Availability
- Reduction of maintenance costs
- Longer useful life of the components

Another characteristic that comes with the model is the material transportation system (augers and conveyors). "This resource offers variable control speed, augers 380 millimeters in diameter, high load capacity sleeve bearings and bearings with external lubrication. Some of the advantages of this resource are the excellent flow control of mixture, more technology and efficiency, as well as the possibility to meet a greater number of paving applications," explains Rodrigo Pereira from Ciber's Marketing Engineering.

The AF 5000 being used in a Brazilian airport

Adding value

The optional systems are used depending on the requirements of each job site. The ultrasonic leveling and automatic lubrication are some of the options made available for adding value to the machine. The new lubrication methodology, for example, brings important benefits such as basic control over the lubrication process, elimination of contamination risks, lowering costs with production, maintenance, and labor, reduction of wear, and increase of the useful life of the components, shortening the time for stopping for lubrication, which increases productivity.

The Plus series counts on an intelligent automation system with three microprocessing controllers designed specifically to operate with Off Road type of equipment. These components monitor and control all the functions by means of a display that not only informs real-time the equipment's parameters through its user-friendly interface, but also indicates to the operator what to do if certain components fail or in emergency situations. The automation components are connected by means of a high-speed network, which makes the operation much more precise and reliable.

Technical Specifications

	AF 5000 Plus	AF 5500 Plus
Paving width:	1,9m to 5,3m	
Paving capacity	450t/h	
Paving Speed	up to 37m/min	up to 30m/min
Displacement speed	up to 4km/h	up to 7,5km/h
Engine		
Output	105HP	
Make	MWM International	
Travel dimensions		
Length	6060mm	
Width	2600mm	
Height	3060mm	

In operation

Ciber's pavers are in operation at the construction site for Natal's new international airport, a city located in the state of Rio Grande do Norte in the northeast part of Brazil. Up until now the base and sub-base have been laid with 45,000 m³, which is 45% of the total forecasted for this stage. "More or less 10,000 metric tons of asphalt mixture has already been laid," informs Rodrigo Pereira.

The airport is being built in São Gonçalo do Amarante, a city close to Natal, an will have the capacity to handle up to 40 million passengers a year beginning in 2020. The inauguration is scheduled for 2009. This first stage will include the access terminal, a cargo terminal, patio, and take-off and landing strip 3,000 meters long and 45 meters wide. The idea is to make it a full-fledged airport complex and has an area planned for hotels and theme parks.

Ciber exports an asphalt plant to Trinidad and Tobago

The **UAB 18E batch plant** has unique characteristics such as **interchangeability of components** and capacity to produce **mixes with precise metering**

The highways in Trinidad and Tobago will be paved with Premium quality asphalt produced by a Ciber batch asphalt plant model UAB 18E. The equipment is being used to expand the highway infrastructure in the country. The high production capacity and the precision in the process for developing the asphalt mixture are characteristics inherent to the machine and contribute to maximizing the asphalt's composition quality.

The batch plant has technological resources capable of producing exact mixtures, which results in improvements to the asphalt and gives the highway a longer useful life. The asphalt mixture is produced in batches, continuously. "The equipment produces specific mixtures for high-traffic roads or for large-scale building projects such as airports. It operates up to 140 t/h," affirms Walter Rauen de Souza, Ciber president director.

The process' reliability begins at the bins that weigh the aggregates and they are later transported by conveyor belt to the counter-flow dryer. The humidity is then extracted, and then an elevator carries the material to a weighing and mixing tower that has a set of screens of different sizes. This way the aggregates are classified into four bins to be weighed individually and lastly put through the pug-mill mixer. "The batch plant greatly minimizes human error," points out Rauen. It produces and unloads the right quantity, and is ideal for working at an industrial scale." Another advantage is its capacity to developed special mixtures such as SMA, which is a type of material commonly used on roads in Europe. "This plant model is able to insert cellulose fiber into the mixture, which changes the structure of the aggregate making it more resistant and better repelling of water off the roads," clarifies the president.

The UAB 18E batch plant sold to Trinidad and Tobago also has another special advantage that sets it above the rest in the market: operational flexibility. "The plant can operate either on manual or on automatic."

The small island of Trinidad and Tobago located in the Caribbean has benefited with the equipment produced and sold by Ciber. The plant was purchased by the company Danny´s Enterprivet, which is Ciber's customer with headquarters in that region and it is used not only to repair the roads in the country, but also to manufacture specific mixtures to be transported to other islands in the region.

Plant used to expand the roads in Trinidad and Tobago

Adequate for narrow projects or urban roads

The **W1000L** and **W1900** are produced by Ciber in Porto Alegre with a **series of options** such as the **grading system** capable of **precisely adjusting** the **milling depth**

Efficiency in cold milling

The cold milling machines W1000L and W1900 of the German make Wirtgen, manufactured in Brazil by Ciber, are equipment used to remove surface pavement of damaged asphalt, remove the complete structure of the highways, and make local repairs. These machines have a strong engine and are versatile and easy to use, which has all contributed to building a strong customer base in Latin America.

W1000L Cold Milling Machine

The W1000L has a chassis with individual functional modules for the fuel, oil, and water tanks. This machine has a 4-wheel drive and a 6-cylinder diesel engine, offering high output and complying with all the environmental laws in the United States and Europe.

An efficient system reduces the noise levels and causes the operation to have less of an impact on populated regions. The equipment has an adjustable scrapper that by setting its height and variable pressure it can remove all the milled material and leave the pavement completely clean. The conveyor belt has an adjustable unloading height, which can be moved to either side. Its grooved surface is designed to efficiently and safely remove the material.

Another characteristic of the W1000L is its capacity to adjust the milling depth based on an automatic system of hydraulic leveling that raises or lowers the rear wheels and the back part of the equipment. The cut is made easily and precisely following the levels set by independent height controls. The electronic grading control is an optional feature. Other information about the versatility of this milling machine can be seen on the map with the equipment's main technologies on the next pages.

W1900 Cold Milling Machine

The W1900 offers innumerous advantages for any milling activity. Because it is compact, it is easy to transport and maneuver in small job sites or on urban roads. The unloading belt can be folded, which lowers the machine's length by more than three meters. It has a 435-horsepower diesel engine and a fuel tank of 800 liters.

The operating cab offers safety to the operator, as well as a full view of the work area, who can work from either side of the machine making it possible to see the milling edge (one of the main characteristics of the Wirtgen milling machines). All operations necessary on the machine can be done from the instrument panel.

No less important is Wirtgen's FCS system, which makes it possible to equip a W1900 with a 2-meter wide milling drum. This optional feature makes it possible to use drums that vary in working width between 60 centimeters to two meters.

In terms of productivity, the mechanical drive of the drum transforms the power generated by the engine and ensures a high performance for the milling machine. The automatic levelling system adjusts the depth desired right from the first meter of operation.

W 1000 L cold milling machine

Loading of the milled material
A scraper makes sure that all the milled material is completely removed. If it is necessary to mill down to the lower bases, the scraper can be adjusted at the height desire with variable pressure. It has a special system for quickly connecting and disconnecting the belt without having to leave the control station. The conveyor belt has an adjustable unloading height.

Milling depth adjustment/Automatic levelling system
The milling depth adjustment is done by a hydraulic system that raises or lowers the rear part of the equipment. The levels set can be monitored on the independent height indicators, even if the support wheel is turned. The electronic levelling control is an optional feature.

Undercarriage
It has four wheels and its forward speed can be adjusted continually from zero up to the maximum speed, both on the milling gears as well as on the transport gear. A hydraulic flow divider works as an actuator of the differential, which results in constant traction even on sharp curves. Hydrostatic drive, self-retention brakes

Replacing bits
Access to the drum to change the bits is simple since the rear scrapper opens hydraulically and the corner protection can be fixed in the top position, which gives full access to the drum.

Milling drum
The milling drum is located between the rear wheel and turns in the opposite direction. It is designed with a patented system of HT11 replaceable bits and bit holders.

Water aspersion
An electrical water aspersion system keeps dust from being generated during the milling process as well as cools and lubricates the bits, extending their useful life. The spray nozzles can be easily removed for cleaning.

Suspension
The steering is controlled by the rear axle, which is suspended like a pendulum. The rear wheels are individually suspended and were designed as support wheels. The right rear wheel can be turned manually until it is placed in front of the milling drum.

Seat
The operation is simplified with precise indications of the elements on the panel. The controls used with greater frequency are integrated into the arm rests.

Operator platform
The control station is located at the rear of the equipment. The seat and steering wheel are adjustable. The operating elements are laid out in an ergonomic way.

Hydraulic System
The hydraulic systems for transport, the unloading belt, and control functions are independent. All the hydraulic fluid is continually cleaned by a special-passage filter. The system is cooled by means of a continual-passage air radiator.

Electrical installation
The electrical system operates at 24V fed by a 3-phase alternator and two 12V batteries. It also comes with a 24V plug-in for accessories.

Fueling
Fueling is done by means of a wide opening, which makes operations more flexible.

Engine
Six-cylinder diesel engine. Its integrated cooling system and fan ensure non-stop operations. The engine complies with all the North American and European standards on exhaust gases.

Steering
The machine is equipped with hydraulic steering. Thanks to the wide angle offered by the front wheels, it is possible to maneuver and operate in tight areas.

Noise levels
An efficient system, installed in series, causes the operation to have less of an impact on populated regions.

HALF A CENTURY

Ciber: Leadership in paving in Latin America

The company completes **half a century** of offering **innovation** and cutting-edge **technology** to the market. **Wirtgen Group** Subsidiary over 10 years, **Ciber is market leader** in important **countries on this continent**

Ciber Equipamentos Rodoviários will complete 50 years of innovation in May, bringing to the market products for paving, construction and maintaining roads. On the eve of celebrating half a century of existence, there are plenty of reasons to celebrate: the company improved its assembly line, set up new processes, as well as a ready-delivery service for rollers, pavers, and asphalt milling machines.

With its factory in the Brazilian city of Porto Alegre (Rio Grande do Sul), Ciber also integrates and sells equipment

from the other companies in the Wirtgen Group (Hamm, Vögele, and Wirtgen). These brands offer products such as asphalt milling machines, recyclers and stabilizers, slip-form pavers, surface miners, soil and asphalt compactors, and asphalt pavers.

The company began its story in 1958 when it built its factory in the city of Caxias do Sul in the state of Rio Grande do Sul. At the time the largest builders and general contractors in the country came on the scene driven by the economic growth in Brazil, which required improvement and the building of more highways. These changes in the economic arena created a strong demand in the market for road construction equipment.

Ciber took advantage of this favorable moment to develop pioneering technology in Brazil: the asphalt plants. Up until then, this equipment was only produced by English and North American companies. The inevitable growth resulted in structural changes, even to the point of transferring the headquarters to Porto Alegre, the state's capital.

With actions focused on the world market, it began to expand

50 anos
CIBER
Meio século de liderança

into Latin America already in 1967. At this time the company made ties with Mitsubishi Heavy Industries from Japan and benefited from bringing the technology offered by the Japanese. The partnership represented an important growth in terms of technology, mostly in the 70s when Ciber became leader in the segments of plants and pavers. The company created strong roots during a period known as the "Brazilian Miracle", marked by large building projects in Brazil such as building the BR 101 highway, the Rio-Niterói Bridge, and other examples.

Quality era...

In the 80s there came about a change in the market's focus and the companies entered into the quality era and a new global economic order was set in place. The redefining of concepts and competencies caused many companies to analyze their markets and focus their business, which resulted in some partnerships ceasing. This was the case with Ciber, which in 1981 separated from Mitsubishi Heavy Industries and went back to having only national capital.

After seven years, another opportunity arose for making another partnership, this time with Wirtgen GmbH, a specialist in road repair equipment. At the time Ciber sold 25% of its initial capital and on the other side added technological innovations and took on new dimensions. With the association, the company manufactured the first asphalt milling machine made in Brazil. Since it was the only manufacture of this equipment in Brazil, the gains were substantial.

... and of competitiveness

The globalization in the middle of the 90s reached the Brazilian industry and the highway equipment sector. The consumer began to have access to products made outside of the country and with better characteristics and prices. At this time Wirtgen, which also owns the brands Hamm and Vögele, took control of Ciber's shares and an intense technological exchange began to take place. "We began to report for the group's operations in Latin America. The company is not only a Wirtgen subsidiary, but it produces the entire line of Ciber products," says Walter Rauen de Souza proudly, who is Ciber's president-director.

The paving segment was once again amazed with Ciber's new product launches such as in 2003 with the line of mobile asphalt plants with a modular concept developed in the external mixing counter-flow system. The concern with the environment brought about the creation of anti-pollutant filters. Wirtgen's modern asphalt pavers and in-place paving milling machines made simultaneously in Germany and Brazil also came on the market together with the recyclers.

Two years later Ciber took another revolutionary step when it began to manufacture the line of Hamm rollers, becoming the first full line manufacturing company and the only one of its kind in South America. Up until then, Hamm had kept its production line of rollers exclusively in Germany.

Times of results

All these prerogatives place Ciber in a privileged position on the continent. Without a doubt Latin America is its main market. However, the business is expanding into Africa with a strong offer in regions such as Angola, Mozambique, Algeria, Cameroon, and South Africa.

In the Latin American countries, the company has had an annual average growth of 20%. It is the leader in the segment of asphalt plants in Argentina and Uruguay. Venezuela, Colombia, and Ecuador are also traditional customers. Ciber entered into Mexico less than three years ago and its market share there is already around 30%. The Wirtgen Group unified its front on the Mexican market in 2007, and in the first year had an excellent performance.

The increase in demand caused Ciber to implement in the last year some conceptual and infrastructure changes in order to meet the growth in the production process. The adaptations to the global standards of environmental protection and the geographical and cultural differences are characteristics of the service the company provides. In order to operate safely and efficiently under different conditions and applications, modular and ecological projects are designed that even allow for operation in areas of high population.

After-sales support is ensured for all customers, even those located in remote regions. Wirtgen has regional representatives that offer complete customer service. "The group has set up a broad and efficient spare parts distribution logistics as well as a well-trained technical staff with specialists in various product lines sold in the market," ensures Rauen.

Job sites in Peru depend on Ciber equipment

The UACF 17P-1 Plant is in **full operating** activity for r**epairing a highway in Peru**. The company also purchased **two Hamm rollers** to use in the same project.

Ciber's commercial relation with the contractors headquartered in Peru has brought good results and it has shown to be a growing market. The Peruvian company Constructores y Mineros located in Lima purchased a UACF 17P-1 Plant in May 2007 for working on the North Pan-American Highway along the Sullana-Águas Verdes section.

The plant began to operate in the city of Tumbes in the north of Peru and stayed there four months. Currently the equipment is operating in Talara about 1,100 kilometers to the north of Lima on another job site.

The UACF 17P-1 was the first equipment that the contractor bought from Ciber, along with two Master tanks for storing asphalt and fuel. Recently, two rollers were purchased: an HD 110 and a GRW 15, both from Hamm.

Constructores y Mineros began its activities in the 90s as a mining company, but later on due to the high demand for roads in the region, it began to operate in building and repairing roads. The contractor's success gave it credibility and expanded its business and made it possible for it to win the bid for maintaining the Pan-American Highway, which is very important to the country.

Business opportunity.

According to Juan Manuel Draxl from the company Intermac Sac, which is Ciber's representative in Peru, the government is currently making strong investments in recovering the infrastructure of the roads. "That is why the market has such a strong demand and the number of projects has grown so much with roads and this has renewed the need for equipment. We have sold mostly plants and pavers," explains Draxl, pointing out that the private sector is also opening several work sites in the mining and energy segment.

Ciber has been the leader in Peru for 15 years in the segment of asphalt plants. At the end of the 90s, the Department of Transportation in that country purchased ten machines of this type for different projects throughout Peru. The goal for 2008 is to put to work five new plants of the Advanced series. Ciber also won a bid to sell to the city administration of Arequipa, a city in the South part of Peru, an AF 5500 Plus. "There are strong investments being made in the municipal sphere in machines for improving their roads," concludes Draxl.

Ciber sells the first cold recycling plant in Latin America

A **Brazilian company** bets on the **KMA 200** for providing an **efficient, economic, and ecologically** correct solution in **recycling processes**

Ciber sold to ANE Pavimentação e Construções, a company located in Barueri in the state of São Paulo, the first cold recycling plant in Latin America, a KMA 200. The Wirtgen's Group pioneer spirit in terms of technology and technical backing offered by the company were the main reasons they purchased the equipment. The acquisition meets the company's objective of recycling adequately the material from the milling process.

ANE was Wirtgen's first customer in Brazil way back in the 80s. The choice for the brand is based on its strong reputation, points out this company's president, Nelson Sampaio Pereira. "We also try to always be ahead of the market and look for suppliers that do the same," affirms the executive.

Among the KMA 200's characteristics, the one highlighted by Pereira is its ecologically correct system that does not harm the environment. Concern with preserving nature influenced the option for the machine. In São Paulo, for example, where ANE has a strong presence, the city hall created a bill that makes the companies that generate asphalt mixture waste provide a correct way of disposing it. "The ecological process reduces the exploration of deposits," affirms Pereira.

Satisfaction is also in the support given during after-sales and the guarantee in terms of durability, efficiency, and savings. "All these reasons have made us loyal to Wirtgen. That is why we are banking on the KMA 200," he points out.

From left to right: Armando Morilha Júnior technical consultant from Ane Pavimentações e Construções; Clauci Mortari, sales director at Ciber; Valmir Bonfim, technical director at ANE Pavimentações e Construções

Characteristics of the plant

The KMA 200 has components assembled to a semi-trailer platform that facilitates transportation without the need of a special license. The process for weighing additives depends on the load cells and the aggregates are weighed into two bins that carry the material to the vibratory sieves (hydraulically folded to simplify cleaning) in order to remove the clots.

The mixer has two pug-mill type shafts and has the advantages of interchangeability and wear resistance, as well as being of easy adjustment during the mixing time. The unloading gate was designed to be hydraulically adjusted in order to adjust the volume from the mixer. The continual monitoring of the volume is done based on a pressure gauge.

The injection system makes the connection of additives and water and the asphalt foam elaboration process takes place in the expansion chamber. The plant's total operation is controlled from only one panel.

A **new layout** resulted in several **positive issues** for **Ciber** along with the **increase in 25%** of its **productivity** and the launching of the **ready delivery service**

Structural changes result in an increase in production

Ciber Equipamentos made important structural modifications in the internal layout of its plant in Porto Alegre. The changes implemented in 2007 brought about a better production flow and met the increase in product demand. The positive balance is already showing up. Last year, 309 pieces of equipment were manufactured, which represents an increase in 25% of its production output.

The industrial reengineering made the adjustments in order to conform the company to international standards of productivity, quality, and management, a direct consequence of using a methodology focused on results. According to Eduardo Farias, Ciber's Manufacturer manager, important concepts were incorporated to the company's culture such as Kanban and Just-in-Time, along with others. "We use control maps that allow us to identify strategic points," explains Eduardo Farias.

The new industrial philosophy has spread throughout the employees. Along with a more lean and prepared structure, the on-the-job training has also contributed to bringing about improvements in the procedures of the manufacturing area. "We have made our customers more satisfied and the equipment more available with a growth higher than 50% in relation to the first half of 2007."

Ciber has also begun to use international indicators such as Right First Time to make each item produced one of excellence. "The results are positive with competitive industrial costs and a better performance of the products manufactured," he summarizes. The application of the management methodology through work cells has standardized the processes and helped it so that all the technical knowledge was absorbed both by the employees as well as by the engineers.

All this improvement has brought great benefits such as the increase of production for ready delivery. The service is innovative and has the goal of meeting the internal and external market of rollers, pavers, and asphalt milling machines. According to Ciber's president-director Walter Rauen, in the last half of 2007, the company manufactured 45 products a month with a reduction of the rework index to practically zero. "We invested in training the engineering and production teams and the 240 employees," points out Rauen.

The new layout of the assembly line required an investment of US$ 50,000. The company, part of the Wirtgen Group, exports to Latin America, United States, Europe, and Africa.

Ciber pavers: electronic grading control

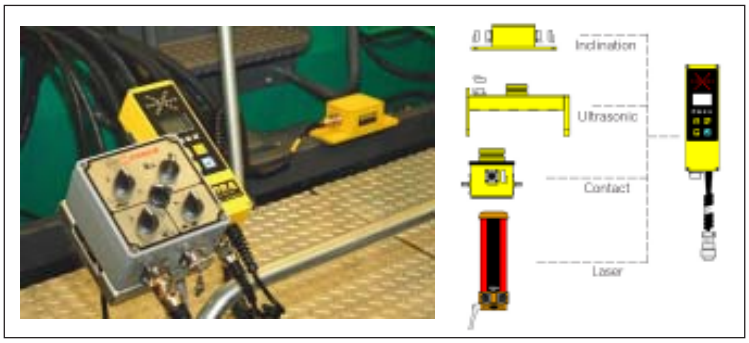
Rodrigo R. Pereira Ciber's Application Engineer

Longitudinal irregularity is the measurable physical size on the surface of the pavements that best relates with the quality of the roller layer. It is a characteristic that can be caused from imperfections risen during the construction or may result in problems caused after the beginning of the highway's operation. The movements and undesirable strains produced by the irregularity bring about an uncomfortable, unsafe, and anti-economical bearing condition, which is the reason why the determination of irregularity of a pavement has been considered.

The main functions of the irregularity measurements are quality control and level of execution acceptance (job site), which are parameters for assessing the pavement and consequently defining the maintenance/repairing strategies and calculating the operational costs of vehicles. From this we can establish a link between the demands of the job done and quality as well as the technological innovations developed by Ciber.

As for laying the asphalt mixture, we can highlight the electronic levelling control system made available on the Plus Series AF 5000 and AF 5500 pavers. Other than the traditional tools for leveling control, these models come with systems that without a doubt are the most modern in the segment for road construction in Latin America.

Availability for different types of levelling sensors



One example is the laser electronic leveling control system. Its operational system is based on installing a rotating emitter on any surface in the area to be paved and a laser receptor on the compacting screed. The emitter projects a sheaf forming a rotating ray that generates a plan. This plan is captured by the receptor on the extending screed that begins to use it as a reference during the process for determining the pavement thickness.

The system is used in projects and for highway job sites that require indisputable precision levels such as areas with a large surface area and constant longitudinal and transversal inclinations, being indicated for applications such as paving airports, sports fields, stadiums, test-drive tracks, zones for moving cargo, etc.

The main objective of this development and the comprehensive studies about pavement is to ensure benefits for the entire society such as reducing costs, safety, and comfort.

Ciber in action

Proven efficiency

Customer: Conter is a Brazilian company with headquarters in the state of São Paulo and for more than ten years has worked with equipment from the Wirtgen Group manufactures and sold by Ciber in Brazil. This general contracting company has its history marked with large building projects such as building the highways of Fernão Dias and Washington Luís.

"We serve very demanding customers and in the same way we value quality when purchasing equipment," affirms the CEO of Conter, Carlos Oliveira. The company purchased a UACF 17P-1 counter-flow asphalt plant, one AF 5000 Plus paver, and another roller and put to work the entire line of Wirtgen Group equipment for repairing the roads in São Paulo.

Characteristics of the project: Conter is repairing 23 kilometers of road along the SP 294 Highway between Osvaldo Cruz and Adamantina in the state of São Paulo. The project began in December 2007 and should finish in September 2008. Its goal is to repair the asphalt surface as well as 50% of the entire pavement. A good part will be recovered with recycling, milling, and restoration with HMA (two layers of 4 cm.).

UACF 17P-1: "The service provided on the plant is of top quality," observes Carlos Oliveira, Conter's CEO. The UACF 17P-1 produces a homogeneous asphalt mixture at an output rate of 80 to 120 t/h. The drying of the aggregates is done by a counter-flow process of external mixture, ensuring quality and long life to the pavement produced.

Paver AF 5000 Plus: According to Conter, the equipment has presented a surprising performance. It is mostly known for its capacity to spread up to 450 t/h while paving from 2 to 30 cm thick and from 1.9 to 5.3 meters wide.

Hamm HD 90 Roller: Conter has already worked with Hamm rollers for many years because of its cost-benefit relation and its productivity. The Hamm rollers are designed for any type of soil and for many kinds of applications, and their technological advantages are that they are economical and versatile.

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Ciber is a company that belongs to the Wirtgen Group, which is continuously investing in research and development in order to offer to the market innovative solutions in asphalt mixtures production. The results are reliable, safe and environment-friendly equipments. Furthermore, it offers CIBER SERVICES, an efficient after-sales service associated to a qualified customer support by specialized engineers.

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