

SMEs export

Argentine technology and innovation

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Exporting potential

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R Y R EXHIBIDORES S.A., wood pellet-fuelled electronic heaters



The metallurgical company R y R Exhibidores S.A. from Temperley, Province of Buenos Aires, with over 40 years of experience in the manufacturing of commercial displays, has recently engaged in the biomass industry, motivated by the growing environmental awareness. ***Under their line Öfen, they produce heaters and wood pellets fuel, an unbeatable option both for heating efficiency and for being one of the most environmentally-friendly systems that contributes to a cleaner, more efficient and economical use of energy.***

Öfen biomass heaters offer great advantages compared to traditional heaters by avoiding the use of firewood and excessive use of gas, while providing safety and comfort for heating different types of spaces.

Öfen is a full line of biomass heaters, designed for each specific need and with different heating powers. All models have been developed and are manufactured in Argentina and are IRAM-ISO 9001 certified under strict quality standards.

INTI renewable energy experts have run different assays, including safety, weldings, assembly, temperature, performance, gas leaks and combustion, embers removal, return fire safety through transport of fuel, minimum autonomy, emptying and controls setting. **Based on the results obtained by INTI, the company was able to certify its pellet-fuelled heaters according to European Community parameters.**

Apart from high calorific power and low consumption, these products offer other benefits, such as guaranteed safety, long lasting autonomy, ease of installation and the unique feature of remote-control operation, with the possibility of automatic daily temperature programming. **“We are the only company in Argentina that manufactures pellet-fueled electronic heaters with high quality finishes, stainless steel and carbon sheet”**, states Rubén Rapetti, the company owner.

At present the company has a production capacity of 3000 heaters per month, and can satisfy a higher demand for exports to Latin America and the European Community. Rapetti adds that they can offer product guarantees in other countries through their distributors.

Öfen biomass heaters reduce heating costs by using pellets as fuel, which is much more economical than natural gas or gasoil and more efficient than firewood. These products operate by hot air convection thorough grids arranged in a special pattern to distribute heat evenly. All levels of operation are administered through an electronic plate, thus achieving greater performance efficiency and low gas emissions with maximum safety and comfort to meet the needs of each specific space. **These are some of the reasons that have contributed to expand the use of wood pellets.**

The different models are:

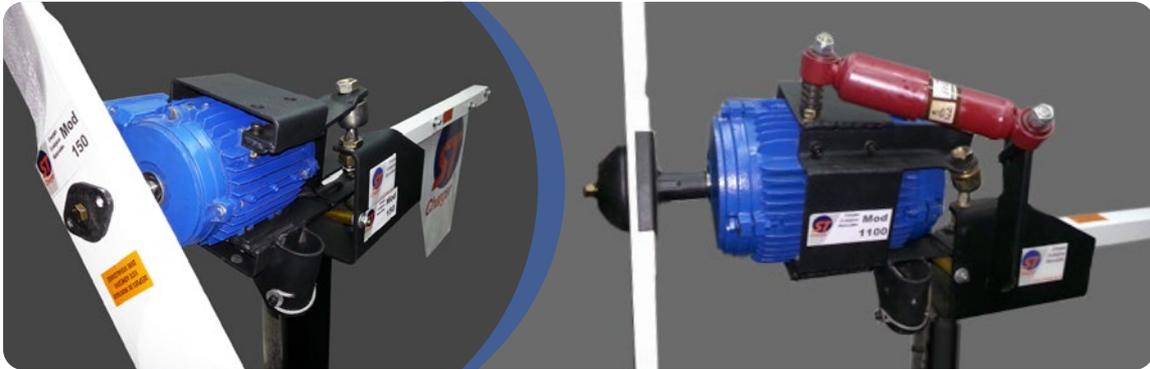
- **Klein Glatt and Kurve**, heating power of 7,000 calories, ideal for heating rooms of up to 80 square meters.
- **Mittel Kurve**, heating power of 10,000 calories, ideal for heating rooms of up to 120 square meters.
- **Winkel**, heating power of 12,000 calories, ideal for heating rooms of up to 110 square meters.
- **Klima**, heating power of 10,000 calories, heats open spaces up to a radius of 2 meters. This model is patented, its gravity system is automatically graded and can be recharged at any time.

• **HS CODE (NCM)**

- 7321.89.00.100R / Pellet and firewood-fuelled heaters



VEXMEL S.R.L., highly efficient low-power wind turbines



Vexmel SRL is an Argentine company located in the district of San Martín, Province of Buenos Aires. The company, established in 2004, manufactures and commercializes wind turbines in a broad variety of power ratings to cover the whole range of low-power wind turbines. **Power curves that characterize ST Charger equipments are INTI certified in accordance with international standards and are patented.**

The ST Charger system converts wind energy into electric power that can be stored in batteries, used in electric home appliances or used to power pumps and other electricity operated devices.

These turbines have a two-bladed propeller that is easy to install and is mounted directly on the generator, not requiring complex gears that might break, creating additional maintenance costs. The energy generated by the rotation of the propeller turns into mechanical energy that drives the motor rotor. This produces electrical energy that is transported through cables to the conversion module, where it is transformed to the battery charge voltage.

The advantages of these units are a highly effective power curve, a high resistance structure of only 29kg of weight, low maintenance costs and higher use flexibility, ranging from water heating, driving water well pumps, injecting current into the grid to charge battery modules, among others.

The units have been subjected to tests by INTI, which included power curve measurements according to the IEC61400-12-h standards, acoustic emissions measurement according to the IEC61400-11 standard, and duration tests according to the IEC61400-2 standard.

These tests are required for product labeling and certification. At present two equipments for injection into the grid are being assessed, as well as new electronic equipments for certification and labeling.

One of the most outstanding features of the equipment is that the propeller rotates to stay always facing the wind, thus avoiding cable wear. The system used by ST Charger is pendant cable, and the fixed link is at the tower base. This makes maintenance easier and permits to decouple the cable from the equipment from the floor surface, eliminating the need to work at height.

The two-blade propellers have better performance than multi-blade ones with the same size and wind. Not being equipped with permanent magnets, blades rotate freely, thus avoiding disturbing noise emission and excessive size that makes replacement difficult. Blades are made of ***Paulownia (kiri)*** wood, that is highly fire-resistant, and built in a single block, adding further resistance and durability. Regarding the advantages of the product, Héctor Cobelo, owner of Vexmel, adds: ***“We differentiate from others because our equipment is patented, is more reliable, is light and offers high performance with low weight on the tower, is easy to operate and adaptable to strong winds”***. He also refers to the strength of its electrical system that operates on alternate current, and the charge regulation system of the battery modules that is simple and robust, marking a difference with direct current systems that are more difficult to regulate.

Finally, Cobelo explains that the ***furling system permits to continuously generate energy***. “As wind increases, the equipment deviation increases infinitely. The equipment generates at full power, regardless of the wind velocity. Some units, when the wind blows beyond a certain speed, i.e. 90 km, must be taken out of service, and in other cases the electricity production curve drops to almost 0. In our equipments, on the contrary, the curve sets itself parallel and continues to generate maximum power. This feature has been certified by INTI”, he adds.

The designs are based on the requirements of each project, where the modules that are easily assembled with standard parts are modified, for which reason production limitations are minimum. When sold in other countries, the equipments have a six-month guarantee issued by the country distributor.

In 2021, ST CHARGER launched a new unit, prepared to inject into the grid with 10 kw of power. The ST10K is a product that maintains the standards and the principles of the lower power line, a robust equipment designed to withstand extreme wind gusts, freestanding and easy to maintain. The regulation system of this line offers a novel feature, the variable pitch propeller. In this way the aerodynamic profile of the blades are modified, limiting the maximum load in the turbine and reducing mechanical strain to a maximum. This also makes a better use of the wind resource, produces a very low level of noise and is much faster than others in the market. Finally, it is highly adaptable, either to work coupled to the network or to be used with other systems like power plants of battery banks.

Vexmel SRL plans to export to all Latin American countries on the Pacific strip and to Uruguay as they have the ideal wind conditions to get a better advantage of their equipments.

• **HS CODE (NCM)**

- 8502.31.00.900T / Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers and parts and accessories of such articles. Generating sets and electric rotary converters. Other generating sets: wind energy – All others (lower than 700kw).



VALLE DE LA PUERTA S.A., production of pellets from olive waste



Valle de la Puerta, a vine and olive tree farm, established in 1994 in the heart of the Famatina Valley, Province of La Rioja, commercializes the wines Ichanka, La Puerta and Quinquela and the olive oil La Puerta worldwide, through the export consortium Argentina Olive Group. **Today, apart from its traditional products, the firm is working in a pellet production line as an alternative to recycle industrial waste, mostly olive pruning waste, with a view to the export market.**

INTI provided technical support for the project, both in terms of energy recovery from olive and vine waste, as well as in the selection and assistance for the installation of the pellets industrial plant. **Its main objective is the reuse of waste originated in production, that will allow them to reduce the costs these generate being environmental- friendly, and at the same time obtain a product with high energy value.**

It should be highlighted that the area of Chilecito in La Rioja has no surface water and annual rainfall amounts to just 150 mm, for this reason all crops require irrigation. This was one of the reasons that motivated the project, **using pruning remains, pomace and pits left after olive oil extraction to produce pellets and generate electric energy to be used in the extraction of underground water for irrigation.** Julian Clusellas, the company president, explains: “our highest cost is the generation of energy needed to obtain water for irrigation, we need to offset this cost to obtain water from deep wells with additional resources. Making use of every by-product is very important”.

The farm has 770 hectares of olive crops. Harvesting starts in mid-March and ends in June, with an average yield of 19 tons of olives per acre, which translates into approximately 1,400 tons of olive oil. **Pellets will be produced starting in September, following olive pruning, leaving some 5 million kilograms of residues annually. Pellets will be produced in different qualities,** one type with a lower percentage of ashes, made of pure wood, without leaves, branches or pomace for household use and another type of industrial grade, with a higher percentage of ashes.

Apart from internal use to generate energy for watering, the company plans to commercialize the product in the heating market, both for household and industrial applications. **“We will be a more accessible option than conventional fuels for heating. There is growing awareness on the need to use sustainable fuels in households.** Besides using a

by-product and not chopping trees as is the case for the production of other types of pellets, we will be more sustainable and competitive. We want to be a leading case so that other fruit and olive farmers follow suit”, states Clusellas.

The company is interested in exporting pellets to Chile, where burning wood is not allowed and where the use of pellets is very popular due to the advantages it has in terms of environmental care. They are also interested in entering the European Union. The company leader concludes: “We are at a point of no return, we are certified under international standards and being sustainable and environmentally responsible is part of our essence as wine and oil exporters”.

• **HS CODE (NCM)**

- 2204.21.00.200F / Bottled wine
- 2204.29.10.100F / Bulk wine
- 1509.10.00 / Bottled oil
- 1509.90.00 / Bulk oil



FÉNIX BIOENERGY, biofuels with an export market



Established in the city of Campana, province of Buenos Aires, for the last ten years Fenix Bioenergy has been producing wood pellets to be used for heating and steam generation in boilers, applicable to turbogenerators in renewable energy applications. ***Their business model aims at supplying solid biofuels to industrial, poultry, oilseed and grain plants, meat packing houses, dairy plants, greenhouses and a large number of applications in heating boilers for industry at large, hotel operations and educational centers, including household heating, particularly for use in pellet-fuelled heaters.***

INTI biofuel specialists have been working in streamlining production processes and have run tests to certify the product quality in order to meet national and international standards. ***INTI support has been the key for Fenix Bioenergy to meet foreign markets standards based on IRAM ISO 17225 regulatory framework, most particularly for woody biofuels.*** Upon implementing the improvements identified along the processes, the company could introduce the product in Italy, Uruguay and Chile.

With relation to the first export operations, Enrique Cuello, the company's CEO, recalls the feeling he experienced with "each truck leaving the Campana plant to cross the border or get to the port to ship the cargo on a vessel as this meant the expansion of an idea materialized with determination, effort, dedication and perseverance".

The product has satisfactory performance in terms of kilocalories per kilogram, better homogeneity, a stable level of moisture, low dust, optimum packaging and delivery compliance. The permanent communication with clients moves the company to improve in terms of performance, caloric power, satisfaction and product continuity. Fenix Bioenergy manufactures pellets from residual, dry wood without additives and its industrial wood sawdust suppliers are qualified sawmills.

"We were the first company to produce wood pellets in Argentina. When we started the product was unknown. Ours is a service industry, engaged with care for the environment and our mission is to provide the most noble and clean heat produced by our own and third-party forests, not from native woods. We are prepared to meet future demands", adds Walter Camacho, Project Technical Advisor.

At present the company works jointly with INTI to consolidate its quality systems to enter European markets with higher value added. The company has planned to build two further plants, one of them in the interior of the country, intending to expand logistics close to Chile and the Pacific and expand the foreign market to the Netherlands, Denmark, United Kingdom, Germany and Turkey.

- HS CODE (NCM)
- 4401.31.00 / Wood pellets



ELECTROMECAÁNICA BOTTINO HNOS. S.A., state-of-the-art wind and solar energy



Electromecánica Bottino Hnos. S.A, a company with over sixty years of experience, located in San Martín, Province of Mendoza, is leader in the manufacture of low and medium

voltage boards, fire protection systems, hydropressure equipments, and metal cabinets, among others. **Since 1998, in line with the growing relevance of renewable energies, the company started to produce solar and wind equipment:** aerogenerators, photovoltaic panels, Wellmaster flat hoses and water extraction pumps.

Its better known product in the field of renewable energies is the **2Kw aerogenerator Winter 1500, that differentiates from other equipments in the market for its constructive robustness, capable of withstanding an overcharge of 50% of its rated power, and its design characterized by a carcass manufactured with aluminum injection with meticulous finishes and kiln resistant electrostatic paint that translates into low weight with relation to generated power. The blades of this model are made of glass and carbon fiber.**

The Winter 1500 aerogenerator offers the possibility of a highly effective electrodynamic braking system. Also, based on the client's requirements, it is possible to incorporate a manually operated mechanical braking system by folding the tail rudder. The performance of this generator is greater than 98%, providing an excellent all-in-all performance.

Easy to install and maintain, this product is ideal to supply energy in numerous applications such as agriculture, farming, mining, oil, telecommunication repeaters, lighting, signaling beacons, water pumping, electricity for remote single-family homes (lighting and home appliances) and even small agricultural and industrial plants. These units operate with very mild winds, at any time, requiring no attention.

INTI has conducted performance and durability tests and measurements of the power curve for isolated grids, according to the IEC61400-12-h- standard. Also, the institute has provided technical assistance for the reduction of acoustic emissions and at present is working in the analysis of the aerogenerator with a power of 10 Kw.

Eduardo Sardi -responsible for the Engineering Department of Bottino Hnos.- reflects: "Our aerogenerators are reliable, robust with an excellent finish and are backed by our over 60 years of good reputation in the electromechanical market and more than 20 years manufacturing low power wind turbines. **We focus on the product and service quality. Our competitive advantage is not based on price, but service and quality. Our motto is: Our clients are for ever**". From its plant in the Province of Mendoza, Bottino aims at expanding into Latin American markets.

Other noteworthy products of the firm in the field of renewable energy are:

- **Photovoltaic panels:** these panels work jointly with wind generators to power the SQ Flex pump with a water extraction capacity of up to 200 meters depth.
- **SQ Flex water pump:** especially developed for constant underground water extraction. The pump, along with the wind generator guarantees a minimum flow at all times, with extraction depths of up to 180 meters. It operates with variable voltage (30 to 300 volts) and automatically, not requiring special attention.

• **Wellmaster flat hose:** is the ideal complement for the pump installation, because it works as a rigid pipe maintaining the pump in the well. As it is flat, the hose is delivered in reels, which facilitates transportation and installation.

• **HS CODE (NCM)**

- 8501.61.00 / Aerogenerator
- 9406.90.20 / Shelters
- 7326.90.90 / Cable trays
- 8537.10.90 / Electrical boards



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• International technical cooperation



The program MAS PRODUCTIVIDAD, developed by the government of the Province of Tucuman, INTI and the Center of Science and Technology of Antioquia (CTA) from Colombia, aims to implement continuous improvement in 40 SMEs in NOA region of Argentina in areas such as food, metal mechanic and construction.

Through the project "Cultura de la productividad en tejidos micro empresariales y ambientes educativos" (Culture of productivity in microenterprises and educational institutions) financed by the Fund for South-South and Triangular Cooperation (FOAR) of the Argentine Foreign Ministry, the program carries out bilateral technology transfer initiatives between our country and Colombia through INTI and CTA.

Technicians of INTI's Network of Management Technologies (RTG) are implementing the MAS PRODUCTIVIDAD program, providing technical assistance and training to help SMEs reach concrete goals by means of the identification and solutions of management issues, evaluation of improvement opportunities and implementation of organizational changes. Also, the project seeks to acquire knowledge, methods and tools of the "ENPLANTA" program developed by CTA from Colombia.

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• INTI capabilities for international markets



The technical training courses offered by INTI in a virtual modality in this scenario of worldwide pandemic is being mostly capitalized by SMEs.

Recently, through a cooperation action with the Paraguayan Center for Productivity and Quality (CEPPROCAL) and the Industrial Union of Paraguay (UIP), INTI has taught the course "Risk management in transportation and distribution for pharmaceutical industry", addressed to workers, middle managers, directors and/or owners of the sector, with the purpose of transferring knowledge on methodologies for good practices and risk management in transportation and distribution of pharmaceutical products. Based on the good results of the first edition, a new course was taught titled "Tools to optimize logistics costs".

INTI and CEPPROCAL have been working in an articulated manner on competitiveness issues, most particularly with MSMEs, using the tools of the Japanese methodology KAIZEN (Continuous improvement through small steps with low investment or none). During the last years, CEPPROCAL has trusted in INTI the training of its professional consultants, sending several of its members to participate in technical training courses.

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