energy for the paper industry

energy efficiency above 97% - local technical service network

- heavy duty boiler structure
- complete access to the combustion chamber for inspection
- efficient heat-recovery system
- low NOx burner, designed and made in house by BONO
- proprietary electronic control
- unique guaranty for the whole system: structure - combustion - automation

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Editorial

Today, talking about energy efficiency is all the thing, a lot is being read about it... sometimes even a lot of blunders! The price of crude oil, even if decreasing thanks to the reducing effect on prices by the North-American shale oil, still is the most relevant cost component of several industrial processes, not to mention its impact on the cost of road transport. The price of natural gas depends on the political processes that are (dramatically) taking place in Eastern Europe and in North Africa. Coal makes towns unbearable to live in, so everyone sings the praises of energy efficiency and of alternative sources of energy.

We have been talking about this matter - and performing it- for over fifty years. We started in 1958 with the production of energy-efficient boilers, employing intelligent burners and management innovative concepts for combustion. Since the beginning of this century we have further refined our combustion technologies by manufacturing new Low NOx burners alongside sophisticated electronic controllers - that we have completely manufactured in-house.

Since 1970, we started to burn biomass from agriculture and plant oils. Over the last ten years, we have enlarged the range of usable fuels providing whole turnkey plants that can effectively burn the most arduous biomass, the humid ones or those with a high degree of volatility inside the combustion chamber.

Since the beginning we perceived that water is a key component of the thermal process, and we committed to the implementation of the whole technology needed to feed our boilers with clean water. We soon perceived the strategic importance of the packages of technologies for the primary and secondary wastewater treatment, and to such activities we have dedicated one of our Group’s companies, which works great, or better which “leaps and bounds” if you prefer a more realistic common saying.

In this issue of the Cannon News – by the way, let us know if you like this new format! – you will discover the solution we have provided worldwide large and small end user companies with, as well as eminent engineering contractors. You will be pleasantly surprised by the range of products that we can provide you with, both in the most standard and consolidated versions, and in the ones designed and carried out following the cogent specifications received by our most demanding customers.

Enjoy reading it.

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IN THIS NUMBER
Industrial Boilers: Strategy and Targets 2-3
ARTES Ingegneria Expands 4-5
Energy Efficiency: Bristol-Myers Squibb 6-8
50 Years of Oil Ovens 9
Intelligent Solutions 10-11
Energy Efficiency: Barilla 12-15
CRESIM to Reuse Carbon Fiber 15
Looking Eastward 16-17
Siberia, Crude Oil Flows 18-19
Pirelli with BONO in Russia 20
Water Treatment... Tailor Made 21
BONO Cuts Energy Costs in the Paper Industry 22
Panguaneta: the Biomass Plant is Almost Ready 23
Customised Trainings for Technicians 25
Cannon Sales Meeting 26-27
Visit the Museum of Iron! 28
DAVIDE LUCCA WAS APPOINTED MANAGER OF THE INDUSTRIAL DIVISION AT BONO ENERGIA IN NOVEMBER 2013.
HE IS CLEAR ABOUT TARGETS – DEFINED TOGETHER WITH THE MANAGEMENT OF CANNON GROUP – AND ABOUT THE STRATEGIES NEEDED TO HIT THEM, TOGETHER WITH HIS TEAM OF SPECIALISTS. HIS WORDS ARE REPORTED IN THIS INTERVIEW.

Born in 1968, Davide Lucca has earned a Degree in Aeronautical Engineering at the Politecnico of Milan in 1994. Thereafter, he spent the early 19 years of his professional career at Afros SpA, the mother company of the Cannon Group, where he has been appointed Sales and Marketing Manager. Motivated by more and more exciting challenges, he has accepted his appointment as Manager of the Industrial Division at BONO Energia in November 2013.

At present, Davide is committed to the complex task of consolidating the company’s positioning as Italian market leader, and of increasing, at the same time, the already remarkable Export share, as well as of widening the range of our so-called standard products.

We have interviewed him in order to understand his expectations and his plans for the future.

Cannon News: To begin with, could you explain us what your Division is after?

Davide Lucca: BONO Energia has always been managing the design of its own products by means of two structures characterised by a different implementation approach.

If a customer tells us: “I need 40 tons/h steam for my paper factory and I am going to keep the emissions into the atmosphere within the limits set forth by the law governing my region” or “We need a flow of 3,000 l/h of thermal fluid a 300°C, in order to heat a reactor of ours”, then his order will be managed by our Industrial Division.

We know “what” our customer needs and we guarantee him the performance of the plant under the best economic conditions, both concerning the initial investment and the management costs over the years.

If our customer is of a more sophisticated kind – usually an engineering company working on some important project on behalf of a third party – and he also informs us in detail about their requirements for the construction of a heat generator, then his order will be followed by the Engineering Division: in these cases, the products by Bono will be “customised”, and its execution shall be carried out absolutely following a precise specification.

The Industrial Division basically manages a standard product, almost as shown in the catalogue. Yet in the end this never occurs, as every commission meets the specific customer’s needs communicated upon the order, but this is part and parcel of the job.

CN: Therefore, what are your main products?

DL: We manufacture steam generators with a two-passes flow and flash coil boilers, for which we cover a production that can range from 50 to 25,000 kg/h, and thermal oil machines, classic and oil ovens, in a field of thermal capacity from 200,000 to 15 million kcal/h. These are classic products, technically well-established over time, that BONO Energia has been producing for over 50 years. It is worth upholding that BONO can obviously meet the demands for machineries having higher capacities than the ones I have just mentioned, and with solutions typical of the Engineering Division.

CN: How many people are employed to carry out this project?

DL: Excluding the production staff, that in BONO is equally allocated between the two Divisions, there are about thirty of us. Most of the people are Engineers having a Master in Energy Systems, and more than two thirds of the staff work for the technical department and for the after-sale service.

CN: What have you been able to carry out during your first year in this position?

DL: Following an early period of a sort of apprenticeship (I come from a completely different industrial field, the one of polyurethane machines) and of analysis of the situation, I started working mainly on three aspects. Rethinking the range of products in order to adjust it to the new needs, techniques and laws, typical of a developing market.

Adjusting the sales and customer care national network to a kind of market which is not at all growing, which however may offer some opportunities yet, if properly approached. Continuing the reorganisation of the distribution network abroad, already underway since some years, following the guidelines by the Group’s Management in a proactive way, that is making the most of the strength of the international network which is powerful and well-established in the territory.

Industrial Boilers:
Strategy and Targets

CANNON
CN : What are the early results of this commitment?
DL: Day by day, we ensure results: we collect hints and needs from market and cooperate with the technical office. For example, we have developed some more effective product versions without weighing on industrial costs, which is why we have been able to keep the price list basically unchanged, providing better performances at the same time.

The Italian sales network is being optimised, through a remarkable effort made in the enhancement of the service centres.

The international network has been enhanced and we are working on an ambitious project: having Cannon locations (the foreign companies that are capital of the Group) become multi-technology and multi-product enterprises. They all are experts in the field of Polyurethane and of plastic technologies, who have been well-established in their own countries for decades. Our idea is to integrate some experts into the energetic field and to have them work in local enterprises that are already equipped with logistic and administrative frameworks and organizations that are proven to be strong and abiding.

We needn’t start from scratch, we will have a running start. We have already done it in Russia and in the Far East and we’ve been successful, now we are doing it in France and are about to reproduce this pattern elsewhere, adjusting it – of course – to the characteristics of the various markets. Our local manager must simply learn to supervise some people more, people who are doing a job different from the one they have been used to, for year.

This is a “good management” issue. Then, from the head office, we will guide the introduction of these new colleagues and we will support them cooperating with our specialists. If needed, we will move on site for us too. visiting a customer and being able to explain him exactly how our product works in his own language, thanks to our local colleague, will be a far cry! From a practical point of view, this has already increased in a remarkable way our export percentage compared with two years ago, and now we notice much more work is feasible abroad than what was foreseen in the past.

CN : Talking about positioning in the various sectors, how do you judge the present stand of BONO Energia?
DL: Unquestionably, the BONO brand is the most well-known and successful brand in Italy in the thermal industrial field, even if it doesn’t work in the civil and hot water boilers sectors. We believe in the company specialisation and we are committed to the specific needs of every single customer, producing solutions as standardised as possible for us (so to keep a competitive price), however as customised and optimised as possible as to the performance for users. Our customers perceive it, and still prefer us to some competitors who may be more aggressive at a commercial level, but less generous at service. Another aspect allowing our different positioning, compared to those of most of our competitors, is the following one. BONO stands in the market as a global supplier of the process, while others have chosen to just integrate others’ specialities and skills. We believe that being in control of all aspects defining the process, from the combustion to the framework of the parts under pressure, from the control to the peripheral accessories, is a value and an advantage for our customers.

CN : In your opinion, what will be the main subjects for the future development of your Division?
DL: The first development subject is sure the one of the energy saving activity for our customers. We are going to offer a certified Energy Audit, then redesign the employment process of their plants, applying new technologies and electronic aids fitting the specific needs, maybe replacing some worn-out boiler and, in the end, we are going to have them compute the saving obtained.

We already have a part of our staff which is full-time dedicated to this project, and the outcome is outstanding.

The second subject that will sure be successful is the After-Sale Service enhancement. We have already started it, we can see it works, so we just have to bring it on: BONO Energia takes over the management of the test of every boiler supplied and then carries out the start-up on the premises, until the final acceptance of the product. These are two operations often taken for granted by many competitors. Moreover, we have started some interesting research and development paths aiming at our product’s improvement and our process optimisation, whose details cannot be disclosed yet, because of reasons that can easily be imagined.

CN : What is your childhood dream, at this point of your career?
DL: Over the next three years, I would like to see the proven results of this project, corresponding to a higher efficiency performed by the plants of our customers, to a substantial invariance of the market share in Italy, to a doubling of the export activity and to a higher contribution margin for the products pertaining to my Division. I could already be happy like that!

CN: Thank you for your time and all the best in your work!

Oil heaters inside containers

BONO Energia has recently implemented - and is providing international engineering companies with - solutions inside containers for the use of thermal oil heaters in all particularly harsh places from an environmental, climatic or simply logistic point of view: for example, in any situation where it would be more logic carrying the whole the small plant, outfitted with engines, pumps and electric aids, instead of having to build it on site! A 40-feet (12-meter) long container, properly modified in order to allow the recirculation of combustion air, can contain two OMV 600 heaters that can generate a thermal power equal to 700 KW. The other version, the 20-feet (6-meter) long one, can contain one OMV heater.

For more information please visit www.bono.it
ARTES Ingegneria expands!

Cannon News: Mr Punzo, can you simply tell us how the company is doing?
Pasquale Punzo: In a nutshell, I would say very well! This is a very important year for ARTES Ingegneria. The issue of water treatment becomes more significant day by day, all over the world, and we devise innovative solutions fitting the growing needs for efficiency and environmental conservation. Plenty of sales, a lot of work, a great deal of new events happening... We are very busy, to cut a long story short.

CN: Can you show us all the novelties, possibly starting from some figure?
PP: The growth rate that has been characterising our company’s activity for several years is going on. In 2014 we turned over 28 million Euros, compared to 24 in 2013, growing by 17%.
And what is growing even more is the value of sales, 35 million as opposed to 23 in 2013, way beyond 50%. We have hit some important targets in the field of Oil&Gas, and now we have to project, manufacture and deliver! As a consequence, we expanded our manufacturing site.

CN: Where did you expand and how?
PP: We added a building next to our factory in Oliveto Citra (about half an hour away from Salerno) twice as large as the first one. We tripled the manufacturing room going from 4,000 to 13,000 square meters, with an evident refurbishing of the other building. We had to completely clear the whole roof and the whole internal structure of the asbestos. It had been a factory for metal structures, initially destined to the nuclear then energy industry.

Now we have adjusted it to our needs, also building a separate department for the processing of stainless and coated steel. We have equipped ourselves with special machineries, fitting our application needs for the production of cladded steel, in compliance with the extremely strict American laws set forth by ASME as to the resistance and corrosion. Now, under the overhead travelling crane in our plant the height utile is 8 meters, so we can completely pre-assemble even the highest plants. Our technical offices will have all the room needed for the realization of the new jobs, and for the new staff.
In the year 2014 only, we have hired four new engineers – and two more are to arrive in the next few months – and a dozen of technicians expert in manufacturing.

CN: How many people work at ARTES today?
PP: At our Corporate Christmas Dinner there were 120 of us, coming from the three offices of Salerno, Oliveto Citra and Peschiera Borromeo. I like to remind that, at least five people work full time on quality. The whole company works in compliance with ISO 14000, to abide by the standards of the environmental quality, as well as paying attention to the ethical aspects of our activity, in compliance with Italian Law 231/2001 obliging the companies “to put in place procedures aiming at preventing offences”.
No tricks, at ARTES!

CN: Now would you, please, tell us about your company’s organization?
PP: We distribute our activity between two Divisions, the Engineering and the Industrial
one. The former works on specifications by our customers, realizing large plants mostly ordered by international engineering companies operating on behalf of major buyers who, in turn, place our plant for the water treatment into a context of great industrial turnkey solutions.

The latter directly delivers more classic plants to the end users, built following some patterns well-established over the years, and allowing a kind of investment and fiscal economy that the industry requires.

CN : Are the technologies used by the two Divisions different?

PP : Basically they are not. As a matter of fact, the size of the supplied plants and the positioning of the various function groups are different. The production, in terms of staff and equipment, works for both Divisions, always with the highest quality and certification standards.

CN : What are the novelties concerning the technologies being used?

PP : The world keeps asking for clean water for drinking, washing and for industry. We are expert in industrial water treatment for both feed and discharge flows, in technologies for the Oil & Gas industry and in the purification of marine, brackish and ground water. Nowadays the most frequent demand comes from the Oil & Gas sector, both for the extraction and for the refining.

In addition to our water treatment lines for production, we are dedicating more and more to the waste-water in refineries both onshore and offshore. For example, the most important order ever obtained by ARTES Ingegneria has been sold last year to a refinery in Turkmenistan, for a plant equipped with treatment system. More than 14 million Euro to treat about 35,000 cubic meters of water a day through 6 different processes. For this plant the most innovative and effective technologies in the field of biological and chemical oxidation, of filtering and of membranes are adopted. The peculiarity of this plant is in its treatment process: it is so innovative that 75% of the whole quantity of treated water is recovered and reused inside the refinery, and the remaining 25% is purified and discharged into the Caspian Sea where, in order to contain the pollution of this closed basin, the maximum limits for discharging are about 20% of the ones set forth for the Mediterranean Sea.

CN : How are your newest technologies devised?

PP : Through a tight cooperation with Universities and Research Centres. During these years, we are cooperating with the Universities of Engineering in Naples, Salerno and Goaemza. Properly patented Super-oxidation techniques to eliminate pollutants that are refractory to standard techniques, or systems for biological treatments based on membranes and activated carbon encapsulated in a micro-cellular pulsed air support are being elaborated. We have recently patented a technology for the treatment of the ships’ ballast water avoiding the transportation of polluting micro-flora from the different seas: working exclusively during the navigation, our system allows a significant saving for ship owners, eliminating the downtime caused by the bunkering services at quays. We are optimising permanent vacuum degassers that allow a 30% saving on power consumption compared to the traditional ones and do not need steam. We have developed an innovative hydrocyclone for the separation of the oily phases from water, for oil well applications. We never hang back from the research activity!

CN : What are the most important sectors of application for your activity and the areas where you sell the most?

PP : Let’s say that today the Oil & Gas sector and the Petrochemical one yield at least 70% of our turnover. Then the Power sector - that is the energy production – is worth around 10%. Thereafter there is all the rest: food and textile sectors, rubber industry, paper mills, surface treatments. A growing sector is that of treatments for platforms for the disposal of liquid waste, in Italy too. We deliver complete packages with a totally automated process to purify the different kinds of sewage. The plant is generally composed of several separate sections that are automatically interlinked and interchanged according to the EWC code of the effluent to treat.

For what concerns geography, we can start by saying that Italy – representing almost 100% of our turnover in 2004 – today accounts for less than 10%. It was not us who lost market shares: sadly enough, it is the market that is disappearing. That is why we turn to foreign countries: we sell 15% to Europe, 35% to the Arab states of the Persian Gulf, 25% to the Far East and the Pacific countries, 15% to the Americas.

We foresee a strong increase in all countries of the former USSR with the “stan” suffix in their names and, for many years to come, in the states of the Persian Gulf. Just in the current weeks, we are evaluating some access ways to North America, mostly for the shale gas development on which most of our investments will be made, in that area. The availability of an outstanding technical-commercial network such as the one of the Cannon Group - located today in more than 50 countries with direct branches and Agencies – allows us to look at export in a more severe manner. Even if used to sell other products, such as plants for Polyurethane and plastic, these facilities allow us to integrate a local expert in the water treatment services and have him directly communicate with us at our headquarters. He finds himself in the territory, he support him from the distance or on site, should our presence be really necessary. He will professionally grow, get to know our technologies and after some time become self-reliant. This pattern has already been tested: it works. Now we have to apply it in other locations of Cannon. So more work to do in the year 2015!

CN : Thank you and all the best for this new year too!
WHEN A MAJOR USER OF STEAM ANALYSES HIS OWN INDUSTRIAL COSTS HE REALISES THAT THE ENERGY EFFICIENCY OF HIS THERMAL POWER PLANT CAN REPRESENT ONE OF THE MAIN COST COMPONENTS OF HIS PRODUCT. THEN, IF THIS IMPACTS ON THE QUALITY OF THE MANUFACTURING PROCESS TOO, NO COMPROMISE IS ADMISSIBLE.

FOR THE ITALIAN MANUFACTURING PLANT IN ANAGNI, BRISTOL-MYERS SQUIBB HAS PICKED THE BEST SOLUTION OF EFFICIENCY IMPROVEMENT OFFERED BY BONO ENERGIA – AND THEY BENEFITED FROM IT RIGHT AWAY!

Bristol-Myers Squibb is an Italian company of the BMS Group, with headquarters in the United States, that has recorded a turnover equal to 16.4 billion USD at world level, in 2013. Bristol-Myers Squibb has been operating in Italy since 1946, when they were the pioneers for the introduction of penicillin in the country. Since 1966 the company has been located in a manufacturing site in Anagni, near Frosinone, taking up 34 hectares, 5 of which are occupied by buildings. This modern plant today employs about 700 people; over half of them work on manufacturing and more than one hundred on quality. At present, 1,400 different kinds of packagings with more than 100 million phials and bottles and 300 million pills are produced here every year.

The drugs produced in Anagni are exported to 62 countries. A manufacturing portfolio ranging from solid products (pills) to liquid sterile injectable ones and infusion ones. Among these, the intravenous paracetamol has played the lead role, a drug that is produced in injectable form, thanks to the development of new technologies that have made a long-term solution possible.

BMS have won this challenge thanks to a patented manufacturing process, by monitoring the crucial parameters provoking the molecular deterioration.

Steam and water – two fundamental ingredients

A key component of the manufacturing cycle of BMS in Anagni is represented by the steam production for different uses: distillation of WFI (distilled water for injectable solutions), production of pure steam for the sterilisation of plants, production of controlled temperature air for the manufacturing departments, production of hot water for heating of offices.

The needed steam is produced using three OMP thermal oil steam generators, delivered by BONO Energia in different years between 1993 and 2006.

The purification of the whole water used in the plant (over 150,000 m³/year, both for processes and for boilers feeding) is ensured by a plant delivered by BONO Sistemi around 1980, and later periodically revamped.
An important intervention
The relationships between BONO and the Management of plant and maintenance services of BMS Anagni, led by Vigilio Auciello, have always been marked by the utmost cooperation and mutual confidence.

“In 2012, the Manager of After Sales of BONO Energia proposed us to carry out a project of efficiency improvement on our three steam generators, that started to reveal the sign of the times” tells Auciello “and we welcomed this idea. We work just thinking about the constant improvement of our working conditions, about our environmental impact and about competitiveness of our products. The effect of natural gas on our manufacturing cycle is significant. With a consumption of over 4 million cubic meters of methane per year our energy bill – about one-and-a-half million Euros – impacts both on the direct cost of production and on general costs. BONO Energia has analysed our situation in depth, examining all aspects of steam production together with our staff. Some areas of improvements have been identified, especially in the logic of management of the steam generators. We have asked for a detailed prospectus of achievable improvements, and for the relevant budget of costs.”

Vincenzo Cervasio, responsible for the General Maintenance of the plant, mentions: “We have carefully weighed the promised savings, and we realised that in the end the return on investment would actually have been very rapid. It all made sense, on paper, so we accepted the proposal. The technical staff from BONO Energia has set up a new efficiency plan of the three generators, concentrating the major interventions on the most modern one among the three of them – a single unit of 2006 delivering 8 t/hour of steam at 12 bar. This power unit has been chosen as main unit, programmed for a non-stop activity. The one next to it in the thermal power plant – a single unit of 1993 – has been defined the back-up unit, destined to integrate the steam production of the main unit during the times of greatest demand.

The third unit, another single one of 1993, has been kept as spare unit to intervene in case of emergency and during the maintenance works on one of the other units. A series of interventions has been planned on these three machines, organising the activities so to ceaselessly carry on the manufacturing cycle of the plant”.

Efficiency improving, Measuring, Reporting
The main power unit has been equipped with an heat recovery unit inside the flue which has allowed to raise the efficiency of the unit at full power from 91% to 95%, lowering at the same time of about 100 °C the temperature of exhaust emissions, consequently cutting consumptions and CO₂ emissions of about 4% and remarkably lowering the heat released into the atmosphere. As achieving efficiency is not sufficient: also measuring and accounting for it properly is necessary, in order to evaluate the return on investment and obtaining the Energy Efficiency
Credits; a MID-approved energymeter has been installed: this has allowed to precisely determine that the saving obtained through the power unit working at full power - about 5,800 kW delivered - goes beyond 200 kWh, equal to the consumption of 6 household boilers. As this power unit is always running, installing an inverter on oil pumps has not been deemed necessary. On the other hand, the burner has been replaced with a low-NOx model, guaranteeing emission levels lower than 150 mg/m³. Nowadays this is the most restrictive limit set forth in Italy, imposed at present on the new installations in Lombardy and Piedmont only.

The backup power unit - programmed to be always ready to deliver steam in the event of some production demands higher than the production by the main boiler - has been equipped with an OptiSpark electronic remote control which is connected via a network with the main power unit: constantly monitoring the working parameters of the main boiler, the system will decide whether or not to switch on the second one. Inverters on all engines (both of pumps and of fans) have been installed here, achieving a saving of about 20 kWh of electricity and reducing the frequency of use of engines, following the real needs.

The burner has been replaced also on this power unit, as on the first one, achieving a total saving on consumption in the end, a higher thermal performance and a reduction in emissions comparable and proportionate to the one achieved on the main power unit.

The third boiler, the spare one, has been equipped with a new burner and with an inverter on the fan, so to work in a proper way when needed. As it is off most of the time, savings cannot be quantified here.

"From our surveys on gas consumptions during the early 6 months of 2014" says Vincenzo Cervasio "we can positively state to have hit this project's target: we are consuming 4% less methane. Furthermore, we are saving over 80,000 kWh of electricity each year, and we have cut CO₂ emissions for about 320 tons per year. This allows us to obtain Energy Efficiency Credits for about 24,000 €/year, that that add up to an important portfolio of energy stocks for our company. In 12-18 months we are going to get the return on this investment!"

Figures making a difference

So, results are there and speak for themselves. Important savings have been immediately achieved, without bothering the manufacturing department, reducing the environmental impact. The savings lower the cost of the finished product and increase its competitiveness on the market, bringing in higher profits or fostering the penetration in those areas commercially difficult. Nowadays, speciality products are manufactured by Bristol-Myers Squibb in Anagni also thanks to the "quality steam" and to the pure water produced through technologically innovative solutions supplied by BONO.

"And now" adds Mr. Augello "we are thinking about the future. On the drawing board there is the application to our several chillers of the same Master-Slave logic that we used on the generators. We are going to process the back-flow of condensation, and have to optimise our water consumption to get a better sustainability. We still rely on the support by BONO, if they will be able to suggest us valid solutions such as the ones delivered last year!"
Since 1962 BONO Energia has been a reliable partner for the supply of **thermal oil heaters** for the direct heating of process fluids, highly valued by more than 4,000 customers all over the world and from different sectors: **Oil & Gas** (for bitumen, refining processes, pre-heating of crude and pipeline oil), **Chemical** (for synthetic resins and the preparation of polyester, synthetic products, drying processes), **Textile** (for synthetic fibres, dyeing, printing, heating of the folding machines), **Iron and Steel** Industry (for anodising, phosphatizing, hot rolling), **Rubber and Plastic** Materials (for the heating of printing machines, production of polypropylene and PVC), **Flexible Packaging** (heating of printing machines, lamination and coating), **Paper** (for production and printing), and soon.

In this page, we are showing some models of thermal oil ovens (**series OMP and OMV**), and of flash coil steam generators (**series UM**) mass-produced in the BONO plant in Netto, near Biella, in Northern Italy.

For further information please visit www.bono.it!
High-efficiency intelligent solutions

The demand for solutions to improve the energy efficiency of existing thermal plants is significantly increasing. **BONO ENERGIA makes available his expert staff who will analyse the existing situation together with the customer and will devise an efficiency improvement plan aiming at getting a very rapid return on investment, then – for many decades thereafter – at accounting for a remarkable saving, enhancing the conditions of environmental impact by plants, where needed.**

**Fabio Asero and Gianpiero Giordi, from BONO ENERGIA, will show us the most recent novelties.**

The projects of energy efficiency improvement carried out by BONO Energia through the supply of new boilers or through the revamping of existing plants are yielding the expected results. **Fabio Asero,** responsible for the After-Sale Service of the Industrial Division, explains that: “There is a strong awareness among customers towards the possibilities of cutting costs for energy coming from running heat generators and from reducing emissions of pollutants into the atmosphere. Yet, while the reduction of emissions is mostly encouraged by external factors – the more and more strict regulations and controls on behalf of the competent authorities – the efficiency improvement arises from the need to recover profit margins that the current market does not allow to get from the sale price of one’s products anymore. In other words, there is the need to save on every detail, even on energy consumption that in Italy are increasingly expensive. As it often happens, the solution to one problem fixes the second one too!”

And **Gianpiero Giordi,** Technical Manager of all revamping interventions adds: “Here is an example of all that is governed by Piedmont Region. On the whole Piedmontese territory emissions into the atmosphere have been recently reduced to 150 mg/m² and not only for new installations, but for the existing ones too. This limit has been set forth also for new boilers in Lombardy and complying with these limits within 2017 is mandatory also for already existing boilers. In other Italian regions the national limit equal to 200 mg/m² is still allowed. Well, this compelled all still not in compliant companies to adjust their plants. We carry out focussed interventions, mostly replacing the burners and/or introducing an extracted or forced recirculation of part of fumes to the burner.

In order to keep their effectiveness over time, these interventions require the availability of combustion control systems that must be extremely precise and constant, such as the use of electronic cams regulating the air/fuel ratio, and no more a mechanic system.

Having it or not makes a big difference. BONO Energia has designed, built and certified them cooperating with its parent company AUTOMATA, and has made them available to its customers. By installing these devices, as well as reorganising the working logic of plants, substantial efficiency improvements are achieved too: in fact, an always efficient combustion reduces the consumption of fuel by 1-2%, therefore the customer saves money on the gas bill.

Asero continues: “Furthermore, let’s take into account that the limits of emissions in the civil sector are lowering to 80 mg/m². If a company uses the thermal plant for industry purposes and for the heating of offices, it must comply with the strictest law. Then the situation changes considerably: more massive interventions are to be made on the thermal plant configuration. Where there used to be an air pre-heater (that paradoxically increases the NOx emission level) now it is advisable to install a heat exchanger of fumes in its place, pre-heating the feeding water for the boiler. This technology can also be used to improve the efficiency of existing generators and leads to a fuel saving from 3 to 5%. These are notable figures corresponding to an economic saving of tenths of thousands of Euros per year.

These often complex interventions on the thermal plant layout must be carried out in a short time frame, as plants must be productive and downtime are usually no longer than two weeks. BONO Energia provides a complete service going from the design phase to the execution of all interventions, so to have our customer obtain the PED Certifications, the White Certificates, and so on. Over the last two years, BONO has carried out some efficiency improvements that have led to an overall cut of CO₂ emissions of about 10,000 tons/year. Likewise CO₂ represents a cost weighing on companies, following the introduction of the Emission Trading System, and we are helping Italy to hit its targets by 2020.”

Many important references...

Just to mention some examples of efficiency improvements carried out in Italy, Giordi lists only the most recent ones: “We have revamped 7 generators for the district heating plants of EDISON in Sesto San Giovanni and in Cologno Monzese, near Milan. They have so accomplished an efficiency improvement higher than 4%.

**BARILLA in Foggia,** producing pasta, improved the...
The innovative fire-tube boiler HE-SMART® is here

NOWADAYS, FOR ANY INDUSTRIAL ACTIVITY WHICH EMPLOYS STEAM IN AN INTENSIVE WAY, IDENTIFYING NEW TECHNOLOGIES AND MANUFACTURING WAYS FOCUSED ON CUTTING ENERGY CONSUMPTION HAS BECOME A PRIORITY. IN FACT, ENERGY EFFICIENCY CAN REPRESENT THE KEY TO SUCCEED IN CUTTING THE INDUSTRIAL COSTS OF PRODUCTS AND IN TURNING THE ENVIRONMENTAL CHALLENGE INTO AN OPPORTUNITY FOR ECONOMIC GROWTH.

This scenario has driven BONO Energia towards the search for innovative solutions aiming at producing energy in the most effective and functional way.

This project aimed at optimising the steam generators of the STEAM-MATIC Series, that have been flagship in the industrial thermal sector for over 50 years, identifying efficiency improvements that could operate in synchrony, deriving the maximum power from the latent heat still contained in the combustion gas. In fact, the energy exploitation goes often beyond the mere innovative design of the boiler and it joins several systems that, combined together and managed by a single centralised control can interact in great efficiency, producing a remarkable saving with no need to get to the flue gas condensation.

So the new Steam-Matic Serie “HE SMART®” was born, the “four-star efficiency” SMART steam generator. These innovative steam boilers can achieve a thermal performance up to 98% “guaranteed”, limiting the smoke temperature way below 90 °C, yet keeping a “Green” approach for what concerns nitrogen oxide (NOX) emissions.

An intelligent heart

The OptiSpark system is the “SMART” heart of this new series of high-efficiency generators. Besides controlling all variables – both on the feed water side and on the combustion air one, in a dynamic way – it also controls the flames and the electric energy consumption.

Moreover, it integrates the control of all safety devices required under the law to administrate plants in application of the exemption regime as tenant, it computes dynamic and historic trends of all variables, it files all detected warnings, making the identification of the anomaly easy and sets up an e-mail service to communicate with the plant supervisors, even via smart-phone and tablet. Several customers have already chosen this new solution and are fully satisfied with it. On one hand, they have been able to verify a real saving on their bills, and on the other hand they have obtained significant funding (“White Certificates” in Italy) granted against proven efficiency only.

Maximum economic return, minimum expense...

From the mentioned statements by these experts in efficiency improvement, BONO Energia knows the process and adjusts it to every customer’s need. Therefore we can have the thermal efficiency increase and have emissions reduce, by using the already existing equipment as effectively as possible, carrying out replacements or installations of machineries only where strictly necessary.

In this way, customers save on the performance, comply with the regulations on emissions into the atmosphere and avoid investing economic resources in complete unjustified renovations of their thermal plant. An awesome outcome!
Barilla and BONO Energia: efficiency and service “Made in Italy”

THE THERMAL NEEDS OF THE PRODUCTION ARE DEMANDING AND OVERRIDING, IN THE PLANT OF BARILLA IN PEDRIGNANO, ON THE OUTSKIRTS OF PARMA.

IN ORDER TO DRY ALMOST A THOUSAND TONS – DAILY! – OF SEVERAL KINDS OF EDIBLE PASTAS A LOT OF HEAT IS NEEDED. IN 2013 BONO ENERGIA INSTALLED A LARGE BOILER THAT CAN DELIVER 25 TON/H OF OVERHEATED WATER.

TAILORED ON THE CUSTOMER’S SPECIFIC REQUESTS, THIS IS THE FIRST ANTI-SEISMIC BOILER INSTALLED IN A PLANT OF THE IMPORTANT ITALIAN GROUP OF THE FOOD INDUSTRY.

WE HAVE INTERVIEWED THE MANAGERS OF THE TECHNICAL AREA AND OF THE GENERAL SERVICES, WHO HAVE SUPERVISED THIS PROJECT SINCE THE BEGINNING AND WHO GUARANTEE ITS GOOD DAILY PERFORMANCE.

Cannon News: Federico Bucarelli, Manager of the Technical Area of Barilla-Pedrignano will show us the main characteristics of the plant, the production process and the factory needs in terms of heat.

Federico Bucarelli: The plant in Pedrignano is strategic for the Barilla Group. It was established in 1969, when the factory in the centre of Parma was being progressively phased out, as it had become too small and non-functional for the needs of the production. Here, at that time, an extremely innovative factory has been built. Still today, the technical solutions adopted are all valid and functional. In the following years, as the activity stepped up, Barilla had to enlarge the first few departments. Today, on a total surface of 1.2 million sqm, we occupy more than 150,000 sqm with our factory, research laboratories, offices, warehouses and general services. We have three production departments – Semolina Pasta, Egg Pasta and Tortellini – with a total of 19 production groups and 26 working packaging lines. On average we produce 290,000 ton/year of dried pasta – almost one thousand tons a day – in 110 different formats and about 350 packaging, working six days out of seven.

This represents about 45% of the whole pasta Barilla produced in Europe. In our district about 1,500 people are employed, 500 of which in the production. We can stock over 21,000 tons of wheat in our silos – while we are about to inaugurate the new storage for 60,000 tons! – and we grind it all in our factory, in the greatest Italian mill: we have two flour milling lines, in an 8-floor building, all conditioned under the ATEX regulations. After the milling and kneading of bran with water, the pasta is extruded in phyllo dough, spaghetti or tube – cut and shaped on the proper size and dried in the end. The pasta comes out with a humidity of about 30%. The dryer will then bring this value below 12.5%, pursuant to the Italian law. This production phase guarantees that the pasta dries evenly, both on the surface and...
Barilla's headquarters: the district in Pedrignano occupies an area of more than 1.2 million square meters: over 1,500 people work here, in offices and plant.

The SG boiler by BONO Energia installed in the thermal plant of Barilla factory in Pedrignano, near Parma, Italy.

Mauro Guareschi, Manager of the Maintenance of General Services of the plant.

Inside. The drying can last from 6 to 12 hours, according to the kind of pasta. The dryers are big transporters contained inside metal insulating panel systems where pasta, constantly moving, undergoes temperatures between 80 and 90 °C. You can easily imagine our needs in terms of heat! This is why we use overheated water, delivered to the different departments at 158 °C...and we need lots of that!

CN: How do you produce this overheated water?
FB: Inside our factory, already in 2008 we have installed a methane gas co-generation plant. It has been designed and built – and is still managed – by FENICE, a company which today is part of the EDF Group. It produces the necessary electricity to our district and the whole overheated water and steam indispensable for the process and for the rooms heating.

The pre-existing thermal plant – owned by us since 2008 and contracted out to Fenice – is supporting the co-generation plant. With three large back-up boilers it ensures that a possible peak of demand non satisfied through the co-generation, at any time, can be immediately settled. This concept also applies to any possible blocks of the co-generation plant or for its maintenance periods, that we usually carry out on Sundays.

Mauro Guareschi, Manager of General Services and of the maintenance of the plant says: “For these reasons, these boilers somehow act like a "defibrillator" for our plant: in case of emergency, they must immediately intervene, with a capacity equal to the one of the main power plant and an automatic interface with the distribution network of the overheated water, which in fact is in common between the two plants.”

CN: Which departments and functions employ the overheated water?
Mauro Guareschi: First of all the dryers. They are placed 600 meters away from the main thermal plant and they receive the overheated water via long insulated distribution pipes, going through an underground walkable tunnel up to the technical ridges.

The water flows in the Semolina Pasta plant at a temperature of 158 °C and at 12 Bar, and in the Egg Pasta and Tortellini plants through a further thermal exchange reaching 135 °C and 5 Bar.

The temperature of thermal circuits inside the various lines may vary according to the production needs.

Where the drying technology requires it, we locally produce steam too: for example, for the drying in some lines of egg pasta and for the pasteurisation process after the shaping of tortellini.

In other words, it is like a brain-teaser. It is fundamental that all works without imprecisions at all, at a constant pace, otherwise the drying process may cause final anomalies on pasta, making its marketing impossible, with heavy economic consequences.

In other words, producing this heat is strategic for the company!

Moreover, the water is needed also for the thermal conditioning of the three production departments and of a part of the mill: these are all huge volumes that are to be kept at a constant temperature all year long, to prevent alterations on the product’s quality.
CN: How does BONO Energia intervene on this complex process?

MG: In 2012 we decided to improve the efficiency of thermal plant replacing an old boiler that had come to its end-of-life. We liked the technical solution proposed by BONO Energia, in particular we appreciated the flexibility they showed during the project phase.

We had to abide by precise dimensions by the millimetre. For example, the big boiler indicated by our technical specifications can deliver 25 ton/h of overheated water had to be lowered in its place by demolishing part of the roof. However, the available opening could not be large enough because of some roof spans, that is why the boiler had to be custom-made. In cooperation with our Engineering Department, we have listed a long series of technical specifications and BONO Energia – unlike other competitors – did not raise objections and has assessed them one by one.

Therefore, we have decided to invest in this fire tube steam boiler with smoke pipes and we have commissioned it to BONO Energia. As it was a special tailor-made machinery, it demanded great cooperation to be perfectly accomplished. So, thanks to much goodwill and patience by both parties we completed the work. The installation was made in mid-September, on a Sunday, and lowering this boiler heavier than 50 tons with a special crane through the roof has not been easy, but in the end it all went well. For the installation and the ignition we only had one month time: we hurried up and we have been able to power up the new plant on 20th October.

CN: What are the results you have obtained?

MG: First of all we now have an earthquake-proof plant, totally covered by PED Certificate, the first one like this for Barilla Group. I forgot to add that our request compelled BONO engineers to work overtime. The boiler and its chimney, as well as the new station of gas control, lie on a pedestal made of reinforced concrete that can stand the most violent earthquake. Well, even the big exchanger standing above the boiler is supported by a framework made by steel beams that could bear an apartment house.

The overheated water reaches the different departments at 158 °C and is then brought to the precise temperature required by the drying of every specific kind of pasta.

Over 290,000 tons of products - 110 different formats of pasta in over 350 packagings - are dried every year using overheated water delivered by the resident thermal plant: almost 1,000 ton/day of pasta.

Penne, spaghetti, macaroni... The Semolina Pasta is kept in huge hot air dryers from 6 to 12 hours.
Talking about efficiency, we had preset a target of 94.5% and we easily went beyond 96%: the fumes recirculation, the large air pre-heater, the Low NOx burner and the OptiSpark electronic system are perfectly interacting to ensure such a result. For what concerns the emissions into the atmosphere, the Emilia-Romagna Region has set forth the maximum limit of 150 mg/nm³ for NOx: foreseeing possible reductions of this value, BONO Energia has suggested us to stay within 100 mg/nm³. Today, at the maximum power, we can confirm to be way below this threshold, which allows us to look to the future with confidence. The boiler by BONO Energia also allows us to avoid the employment of the licensed stocker up to 72 hours, simplifying the work of the staff of Ferie managing this thermal plant.

CN: Mr Bucarelli, can you comment about the cooperation with BONO Energia on this project? FB: As a whole, our cooperation has been very good. Several problems to be solved have arisen and we have done it jointly. During the installation phase, some emergency situation brought us working side by side, on Sundays, all focussed on not polemizing and on carrying out the job properly. The training, held both in a classroom and in the thermal plant by BONO Energia staff for all our colleagues involved in this management, has been carried out in a terrific way. Nothing to object, we have worked with satisfaction and we have achieved the expected result. Well, we even went beyond expectations as to efficiency and emissions.

By leaving the plant in Pedrignano we go through the different departments, where huge lines dry spaghetti, lasagne, penne and tortellini at a speed that could have even an army of “redzöre” pale – the legendary Emilian housewives who for centuries have been performing this noble “art of baking”, exclusively using rolling pin, pastry board and much elbow grease.

A person near the machineries, all working at top speed, is seldom seen: only few technicians in the computerised control rooms, following on the screens the progression of the different lines and to make the appropriate regulations, if and when any parameter should go a little out of filter. Every line receives hot or overheated water and steam proportionately to the needs of that specific production. All products, after their packaging, are shipped to the central warehouses, where a fleet of 54 ultra-modern LGV (Laser Guided Vehicles) silently and as efficiently as possible displays them on shelves, from where it then collects and delivers them to the numerous articulated lorries waiting at the shipment platforms, according to a plan indicated by the central computer managing the whole logistics.

Barilla is an impressive example of efficiency and performance, a flagship of the Italian industry. Effectively served by another Italian company, BONO Energia!

Given the current situation, these two examples must not be ignored...

At present, the Cannon Group is busy with a research and development project – funded by the European Union within the LIFE+ Programme – aiming at the implementation of a complete package of technologies fit for the industrial reuse of recycled carbon fibres. Today, with different methods, these fibres are already produced by specialized firms, processing the production waste from several industries using carbon fibres to manufacture parts and items in highly resistant but light composite materials.

Until today, such waste – classified as special waste and characterised by a quite high cost – have represented a serious problem, both from and environmental and an economic point of view. Their recovery has already shown to be feasible and economically affordable and is not part of the above-mentioned research project.

This program – including the phases of research, implementation of devices and procedures, prototyping, industrialisation and marketing – is going to introduce to the market a methodology and the relevant facilities to manufacture parts or items using the recycled carbon fibres that are already available in sufficient quantities for the industrial use, in a highly qualitative way, that is achieving those mechanic and aesthetic characteristics that are very similar to the ones of virgin fibres.

At present, Afros SpA - a company of the Cannon Group specialised in the manufacturing of dosing machines for the composition of multi-component resins (Polyurethane, Epoxy, DCPD, Silicon, etc.) - is cooperating with the firms of the concerned sectors (producers of virgin carbon fibres, processors, moulders of items made of composite materials, regenerators of carbon fibres) to jointly develop new applications and production methods for the recycled carbon fibres.

This technology has been named CRESIM: Carbon RECycling through Special IMpregnation.

For the project details please visit www.life-cresim.com, where the persons concerned will find some hints for a possible cooperation.
Looking Eastwards

FAR EAST AND SOUTH EAST ASIA, WHERE AROUND 30% OF THE WORLD POPULATION LIVE, HAVE BEEN THE MOST HIGHLY DEVELOPING GEOGRAPHIC AREAS OVER THE LAST 20 YEARS. CHARACTERIZED BY A MAINLY FARMING SOCIAL STRUCTURE, THESE AREAS ARE EXPERIENCING AN INDUSTRIALISATION PROCESS AT A TREMENDOUS PACE, ALREADY PROVOKING ALARMING – IF NOT DEVASTATING – EFFECTS ON PEOPLE’S LIFE.

VERY SEVERE PROBLEMS LINKED TO AIR AND WATER POLLUTION IN CHINA ARE ON THE HEADLINES ALL OVER THE WORLD. EFFECTIVE SOLUTIONS TO REDUCE AIR AND WATER POLLUTION, CLEAN TECHNOLOGIES, RAPID AND TARGETED ACTIONS ARE NEEDED.

IN 2012, CANNON FAR EAST (CFE) DECIDED TO WIDEN ITS PRODUCTS PORTFOLIO ADDING ALL BONO TECHNOLOGIES TO THE RANGE OF CANNON SOLUTIONS IN THE PLASTIC SECTOR, SUCCESSFULLY DISTRIBUTED IN THIS VAST AREA SINCE 2000 ALREADY.

WE ARE GOING TO ASK DENNY TSENG, BUSINESS DEVELOPMENT MANAGER OF CFE, ABOUT HOW HE IS LEADING THE INTRODUCTION OF BONO TECHNOLOGIES FOR THE PRODUCTION OF CLEAN ENERGY AND FOR THE WATER TREATMENT IN FAR EAST ASIA.

Cannon News: To begin with, please, tell us something about you.
Danny Tseng: I have been working with Cannon Far East in Singapore since 1st August 2012. I work on the development of BONO technologies in Far East Asia, a territory going from Mongolia to New Guinea, passing by China and all countries of South East Asia. I do not work with India and Japan, but all the rest of this area is my direct concern.

CN: This territory is immense, its environmental problems too: how do you think to face them?
DT: Not by myself, of course! Following an apprenticeship and training period in Italy that lasted about four months, I started to carry out an analysis of the different markets, for almost the whole 2013. The need to set up a network of local agents, with a good reputation on their territory, specialised either on energy or on water, able to work also from the stock has been evident at once. First of all, here the skill to interact with customers is successful, being a serious and reliable native is the best business card. Therefore, I started to select a group of Agents, to impart them the key technical-marketing matters in order to promote our three series of products, and to carry out with them some visits at our key customers.

CN: How far have you got by now with this project?
DT: We have appointed the Agents for Malaysia, Vietnam and Indonesia, where a single partner is able to support us for both businesses. We are about to sign the agreements with Agents in China: in this country we will need at least four of them, both because of the vastness of the country and of the specialization and structure problems. I have realised that in some countries – in China, for example – having a boiler that is immediately available at the...
In China there is a growing demand for technologies of clean combustion. In Beijing and in the other main cities, the air is simply unbreatheable. With the 24% of the total in 2007 – and it is an old figure, today it has surely worsened – China has the world record of the highest CO₂, NOx and SOx emissions, due both to the thermal plants, most of which are still fuelled by coal, and to traffic. This figure will hardly decrease in the short run, because there is no world authority able to steer and reduce this phenomenon. Just this year, after 25 years, the Environmental Protection Law in China has been reviewed; it now provides very strict targets, to be achieved in a very short time, as to the reduction of pollutants emissions into air and water. Also here we could give a relevant contribution, properly working on targeted projects: sure, we will not go in China and compete on price.

Potentially, the most interesting markets for the most classic products by BONO Energia are Indonesia, Vietnam and maybe Myanmar, that have recently opened. Then, as to products manufactured following the customers’ specifications, the market is wide open, since the requirements are generally more strict.

The opportunities are that Chinese EPC contractors such as Sinopec and CNOOC are investing on world projects, as well as Japanese and Corean EPCs are doing.

For BONO Sistemi we need to devise a good strategy in order to penetrate these markets, selling engineering solutions with high performance and low emissions into the atmosphere.

CN: And what have you done in the meantime? 
DT: Sure we have not been waiting for orders to fall on our desks out of the sky! Thanks to the utmost cooperation by our Italian colleagues, we have already managed to conquer several significant contracts: two important projects for ARTES Ingegneria in Malaysia, three more in Indonesia – one of which for the local plant of Pirelli – a large plant for an electricity power plant in Taiwan and now also one in Vietnam, where we have sold a large boiler in the pharmaceutical industry. We are in the final stages of the negotiation for five thermal oil ovens for Malaysia and we are starting our activity in China with and order including six UM steam generators. I mean, the premises fora good job are all there!

CN: What is the BONO Energia strategy in the future?
DT: Having the network of Agents in China start, teaching them all techniques and sustaining them during sales negotiations; holding a series of technology seminars with the specialists coming from Italy in the most strategic countries; concentrating efforts on Indonesia and Vietnam, two countries that together have 330 million citizens and that attract always more foreign investors in the food, beverages, pharmaceutical industries; valuing the references and the good results achieved, to stabilise Cannon BONO as a high quality brand, well known and appreciated in the reference sectors; confirming the presence of BONO in the Oil&Gas sector: all countries are drilling the sea bottom of Southern China, with huge projects.

We are making our way to it, now we can only grow stronger!

CN: Thank you, now we can only wish you all the best in your work!
Siberia: crude oil flows thanks to BONO Energia!

One of the most important agreements undersigned by BONO Energia in 2013 was about the supply of 56 thermal oil boilers for a really peculiar application in the oil&gas sector.

The 488-kilometre long oil pipeline connecting Zapolyarje and Purpe, two Russian locations on the Arctic Circle, will transfer 45 million tons of crude oil from the extraction areas to the terminal on the Kara sea.

In order to extract and transport crude oil from extraction fields to refineries and employment areas billions of... any currency are spent every year! Nobody backs up in front of any hurdle, be it a marine depth, a sweltering desert or one of the world harshest natural environments: Siberian Tundra near the Arctic Circle.

Right in this area, an oil pipeline whose length goes beyond 900 km that will connect the wells in the Russian region of Yamalo-Nenets to a marine terminal on the Kara sea is being built. It will have to overcome 90 watercourses, including big rivers such as Pur and Taz, as well as 21 main streets and 250 kilometres of tundra, taiga, forests and summer swamplands and winter frozen lands. Actually, not a cakewalk.

The segment between Purpe and Samotlor, 429 km, has been opened in 2011 and it already transports 25 million tons of crude oil per year. The second segment, from Purpe to the sea, once completed in 2016, will move over 45 million tons.

The high viscosity of crude oil and the polar temperatures recorded in this region for most of the time entail the heating of crude oil at a temperature of 60 °C so to keep it fluid all the way long.

The whole oil pipeline has been designed above-ground paying particular attention to avoiding possible heat losses – from the insulated pipes, having 600 mm of internal diameter – that could provoke damages to the permafrost, to the vegetation and to lichens present in this area.

Special solutions to special problems
Each of the seven great heating and pumping stations, designed for the line every 60 km, are equipped with eight special thermal oil ovens exchanging heat with crude oil in large heat exchangers. The thermal oil is fed at 180 °C.
BONO Energia provides the engineering companies Remeks and Ozna with 56 OMV multibular special ovens rated 4 thermal MW, equipped with OptiSpark control system and double burner, fuelled by crude oil and natural gas.

Two oil ovens have been installed in a 12-meter long two-floor insulated container, built and assembled by the two companies that are customers of BONO Energia.

The 56 ovens – special versions of the OMV model by BONO Energia, having a capacity equal to 4 thermal megawatts – have been delivered to two Russian engineering companies –40 to Remeks and 16 to Ozna – who have built some special 12-meter long two-floor containers that are thermally insulated, in order to install them on site. These ovens may be fuelled by heavy naphtha (today) and natural gas (that will be available there in a couple of years), so to allow a multiple choice on fuel. Designed and built in compliance with the strictest European regulations, these OMV hold a GOST Certification and a RTN (Rostechnadzor) permission. Two OMV units similar to these have been previously supplied to Shell Russia for a comparable application, and this reference has played an important role in the obtaining of this important order for BONO Energia.

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Pirelli chooses BONO in Russia

CANNON EURASIA, BONO ENERGIA AND ARTES INGEGNERIA HAVE DELIVERED AN IMPORTANT TURNKEY THERMAL PLANT FOR THE TYRES FACTORY OF PIRELLI IN VORONEZHZ, 500 KM SOUTH OF MOSCOW, RUSSIA.

This project was started when Pirelli, owner of VSZ (Voronezh Shina Zavod), in the context of a general modernisation of the production plant for industrial tyres, made the decision to produce all the heat required by the vulcanisation process by itself, thus interrupting a procurement agreement with the local energy utility.

In 2012, after having replaced all production machineries and having installed the best devices on the market with an investment equal to 56 million Euro, VSZ started the installation of a big thermal plant.

Three large water tubes boilers, having a total capacity of 53 thermal MW, have been supplied by BONO Energia.

The heat recovery units at flue level allow the feed water for the boiler to be pre-heated, thus increasing the energy efficiency up to 95% in full swing.

Using inverters on all engines of pumps and fans, as well as a complex network of sensors for the constant control of combustion parameters, have allowed to cut costs for electricity needed to run the plant.

The control panel manufactured by Cannon Group allows to automatically manage the workload of the three boilers according to the demand coming from the different departments.

For this project ARTES Ingegneria has provided the complete plant for the treatment of the feed water of the boilers, composed of a section for reverse osmosis and two degassing units. The water – about 50 ton/h, coming from the river Don near there – is filtered and sanitised in a pretreatment area designed on purpose to manage a wide range of polluting substances. Thereafter, it is demineralised up to a conductivity value of 20 microSiemens, needed for the optimal operation of boilers.

The presence of two parallel treatment lines ensures the continuity of all operations even during the maintenance periods.

The oxygen remover consists of two thermal-physic degassing units that can produce 75 ton/h of water perfectly degassed: the Spray&Tray technology, patented by ARTES Ingegneria, allows to get excellent levels of CO₂ and O₂ extraction: the latter can reach minimum concentrations of 5 ppb (parts per billion).

A key role for the acquisition of this important order has been played by Cannon Eurasia, the Moscow-based company of the Cannon Group, that is authorised to sell and install turnkey plants on the whole Russian territory, holding an SRO (Self-Regulatory Organization) licence.

The three companies of the Cannon Group have cooperated really effectively in order to achieve this important job, and have once more applied the successful strategy of joining the best technological resources, present in the Manufacturing Centres, with the local presence and experience of a strong Location.
Customer satisfaction as target of fidelisation

S.E.I.R. - RAFFINERIA DI BRINDISI has been recently equipped with a cogeneration plant that, having to produce steam, needs extremely pure water. The existing reverse osmosis plant was not suited to supply it. Here is where the request for a finishing plant with resins, that can reduce the conductivity from 40 to less than 2 microSiemens, comes from.

ARTES Ingegneria proposed the technology with cation/anion resins named “mixed-bed”, aiming at getting a water having conductivity way below 2 microSiemens.

Another purpose of this project has been that to optimise the available space, deeply integrating the new plant with the existing structures.

REVERSE OSMOSIS WATER TREATMENT PLANT
The supply includes a filtering system of water flowing into the plant at a rate of 160 m³/h, composed of three filters having diameter of 2,600 mm, including a disinfection station, blowing skid, skid pumps, 50 m³ counterwashing tank and flocculant dosing station; a polishing plant with mixed-bed technology, having flow rate equal to 15 m³/h, with two columns, diameter 900 mm, height 3,000 mm, acid and soda dosing skid, and the relevant dilution unit.

ADVANTAGES
The advantages obtained with the solution offered by ARTES are mainly represented by the space optimisation; this availability to build the plant following the user’s needs, together with the excellent performance of the plant, has completely satisfied the customer allowing ARTES to get a second order of an even higher value than the first one, for the filtering system of the whole water flowing into the plant.

FLUORSID SPA - Assemini (Cagliari) needed to own a process water demineralization plant for its largest thermal plant, but the area that such installation could occupy had to be as contained as possible.

ARTES Ingegneria offered a 100% tailored solution: the footprint of the plant has been optimised in the area available in the factory. As a result, the plant is completely built on skid and integrated with the existing structures.

WATER TREATMENT FOR THERMAL PLANT
Demineralisation plant consisting of three main skids: pre-treatments, reverse osmosis and mixed-bed (polishing)

Pre-treatments with net flow rate of 65 m³/h:
• dosing of chlorine
• three standard filters
• ultra-filtering unit

Reverse osmosis with flow rate equal to 24 m³/h:
• osmosis, single step, single line
• dosing of chlorine
• dosing of metabisulphite

Final polishing
• single mixed-bed made of carbon steel with PVC front
• dosing of HCl (for regeneration)
• dosing of NaOH (for regeneration)

ADVANTAGES
The advantage obtained by the customer is to have the best technological solution available at the state-of-the-art, installed in the available space inside the old plant, that was potentially inferior to the new one.
BONO Sistemi, with over 50 years of experience and with more than 60 installations worldwide, is a leading company in the engineering and production of steam generators and thermal fluid generators fuelled with biomass.

The technological solutions by BONO Sistemi are especially applied in the food farming or in the wood and paper industries, where the waste of production processes such as pomace, rice husk, skins of various seeds, trimmings and wood chips, waste of panels, barks and sawdust, often represent a management problem and a disposal cost.

BONO Sistemi makes its experience available for firms, as well as its competence and technology to value the waste of production, transforming them in a precious free-of-charge energy source. In particular, BONO Sistemi can devise and deliver complete turnkey solutions for thermal and cogeneration plants starting from the "green field".

An important Italian manufacturer of paper and related products, working at global level, has recently entrusted the implementation and building of a 13 MW thermal plant fuelled with wood chips to BONO Sistemi, destined to its manufacturing plant in France. The biomass thermal plant will replace the existing gas plant: this is a choice of commitment by this paper company to favour the renewable energy against the fossil fuels, for the production of thermal energy.

Solutions dedicated to paper mills

The paper industry, notoriously very energy demanding, continuously needs medium pressure steam, about 18 barg, to feed the machineries producing the “tissue”, with an almost constant thermal performance, 24 hours a day, about 340 days a year. Therefore, the plant has been designed to meet these requirements of high reliability and operation capacity.

The supply by BONO Sistemi includes: the steam boiler that can operate without the constant presence of supervisors up to 72 hours, the complete burning treatment up to the flue; the ashes removal and transportation system; the biomass fuelling system consisting of silo with forklifts - 1 000 m³ - 72 hours of autonomy and chain conveyor, water treatment and degassing system, water removal, control panels equipped with all electric connections and water and steam pipes up to end users.
Panguaneta: the biomass plant is almost ready!

Wood chips coming from the growing and the production processes will fuel a big biomass boiler that can produce steam at 20 bar to be used in the factory. The plant, here during an assembly phase, will be ready in the first months of 2015.

From the poplars grown in the countryside surroundings, Panguaneta obtains the raw materials for its manufacturing and produces panels made of natural wood and particle board.

THE INSTALLATION OF THE BIG BIOMASS PLANT OF PANGUANETA, ITALIAN LEADING COMPANY FOR THE PRODUCTION OF POPLAR LINED PANELS, PROCEEDS Apace.

Within the first months of 2015 the Panguaneta factory in Sabbioneta, near Mantua, will start a huge plant, fuelled with the waste of the making of panels, so to produce the required steam for the production cycle.

Barks, branches, wood discarded during the makings and panels to be recovered will be “chipped” to tiny dimensions and burnt in the thermal plant built by BONO Sistemi.

This solution will eliminate the consumption of natural gas, in compliance with the regulations set forth about polluting emissions: Sabbioneta, listed by UNESCO as World Heritage since 2008, has an historical, artistic and naturalistic value that does not permit any infractions at all of laws on environmental protection!
More than 32,000 Cannon Mixing Heads have been installed on more than 14,000 metering units, in the 5 continents. The output capacity of these heads covers a range up to 10,000 g/s, meeting and exceeding the expectations of a wide number of end users of Polyurethanes, Epoxy, Silicone, Phenolics and DCPD. Dedicated models have been specifically developed for different applications, chemical components, injection or pouring methods. A continuous commitment for excellence is the driving force that pushes Cannon to search for new solutions, to provide reliable and profit-generating tools to their customers.

Original **cannon** Heads: Guaranteed Quality!
Customised trainings to successfully carry out any complex project

BONO ENERGY HAS RECENTLY HELD A TRAINING ABOUT THERMAL OIL HEATERS WITH SERPENTINE HEAT EXCHANGERS. THE TRAINING OF RUSSIAN OZNA AND REMEKS CUSTOMERS HAS BEEN HELD IN THE FACTORY OF BONO NETRO, WITH THE PARTICIPATION OF THE TECHNICAL STAFF OF CANNON EURASIA, THE CANNON BRANCH IN MOSCOW.

The training has been organised alongside an important project for the supply of 56 thermal oil boilers [see page 18 for the details] for a total potential of 214 MW, with Siberia as final destination, where the hot fluid will serve to heat a long crude oil pipeline. The "technological challenge" is represented by the harsh climatic conditions (outside temperatures can reach -60 °C) and by the use of heavy naphtha as fuel.

A delegation of ten people – start-up engineers, technical managers, operators of boiler houses and project managers from the Russian engineering companies and from the final customers – have come to BONO Netro on 29th July 2014 to begin a technical three-day training about the oven operation, the automation system, the burner, the safety maintenance for the boiler house.

BONO Energía has made available its most experienced specialists for the whole period of the training. In particular, the key aspects of the thermal oil technology, that is its main advantages compared to the use of steam under adverse weather conditions, where the use of supply water would represent a major problem have been examined.

The structural aspects of the thermal oil multi-tubular solution – the unique and perfect technology for this application, as it can be easily inspected and wiped out from combustion remains – have been explained in every detail. Moreover, the safety maintenance procedure of the ovens has been shown.

In addition to the theoretical analysis of the technology and the maintenance of the oven, assisting to a true start-up of a unit has been possible: in an area of the factory of Netro, BONO has rerun a circuit similar to the one of the project, where the participants have had the possibility to practice what they had learnt during the theory sessions. A thermal oil heater having the features of those of the project has been started, following all ignition procedures.

The participants have had the possibility to get familiar with the OptiSpark automatic control system, designed and implemented by Automata, and to watch the interaction of the oven with the safety systems and with the auxiliary devices (circulation pump, expansion tank, heating station of naphtha, etc.).

The Russian technicians – coming from a historically technically sophisticated country, as to energy, as well as highly dedicated to thermal technology and to all its issues – were impressed by the high level technological know-how, by the professionalism, the organisation by BONO and by the depth contents of this technical training.

Hosting a training in its factory for customers coming from all over the world is one of the activities allowing BONO to be always closer to its customers, available to transfer them its knowledge and competence. This is a key factor to guarantee the complete success of a project, starting from the design phase to the start-up, for dozens of years of effective and safe service.
THE FIRST CANNON GROUP SALES MEETING WAS HELD FROM 30TH SEPTEMBER TO 3RD OCTOBER 2014 IN MILAN AND IN THE IMMEDIATE PROXIMITY. ALL LOCATIONS AND ALL AGENCIES OF THE GROUP TOOK PART IN IT.

THE FOUR DAYS OF INTENSE COMMITMENT HAVE INVOLVED OVER ONE HUNDRED PEOPLE, COMING FROM 24 COUNTRIES, IN CLASSROOM SESSIONS – HELD IN A BIG HOTEL IN MILAN – AND IN VISITS AND PRACTICAL DEMONSTRATIONS AT THE FACTORIES OF THE GROUP, ON THE OUTSKIRTS OF MILAN.

For the first time in the Group’s history those dealing with Plastics Technologies and the ones of Energy and Water Treatment – have met for a strategic meeting.

Two common sessions – at the beginning and at the end of the Meeting – have allowed everybody to acknowledge the strategic messages necessary to steer the activity in the years to come and to analyse in depth the sales trend of each company of the Group.

Then, two days dedicated to technologies have fostered the knowledge of the latest technological novelties from the different Divisions, taking part in dedicated sessions in the factories of Caronno Pertusella, Samarate, Peschiera Borromeo and Netro.

From the general meeting, some experiences of the branches that, in recent years, have extended their areas of activity – going from plastic technologies...
only to a much vaster field, including the production of thermal energy and the industrial water treatment too – have been shared.

The managers of such branches have talked to their colleagues about the set of problems they have had to deal with during the complex change of mindset and about the organisation required by this effort, not only at a practical level.

The results collected through the technical-marketing structures that could distribute and supply a much wider range of products and solutions than the original one have been analysed by the involved group of colleagues, that sure drew inspiration and suggestions from the experience of the colleagues holding the speech.

The diversification of the Cannon Group towards energy and water treatment, after 25 years of committed work, is reaching all components of the organisation. A Cannon Location that can distribute all products of the Group will be able to better resist against the turbulence of a more and more global and competitive market.

The organisational synergies obtained by a more rational structure, which can dedicate to different markets and customers the already existing human and logistics resources, allow to confront the difficult economic scenarios typical of today’s world with optimism.

The international structure of Cannon has got ready and is working to broaden its horizons and its mindset.
Visit the Museum of Iron in Netro!

The Museum of Iron at BONO Netro hosts a collection of ancient machineries, tools and finished products from the sector of metallurgy.

Mallets, hydraulic and mechanical presses, lathes, drills and equipment for precision and heavy mechanics can be seen in a wide exhibition area.

An ancient “maglio ad alatalena”, a kind of swing mallet (or “donkey hammer”).

The smithy and the tools used for the practical proofs of iron forging.

The “Centro di Documentazione sulla lavorazione del ferro - Ex Officine Rubino” is located inside the factory of Cannon-BONO in Netro (Biella) and is part of the EcoMuseum Valle Elvo and Serra. The Museum represents one of the most rare Italian examples of industrial archaeology joint to a still active working world, even if with a different kind of production.

Already at the end of the 16th century, along the Inganna creek, in the territory between Netro and Mongrando, the early production units for the iron processing were placed.

The most revolutionary industrial development started at the end of the 19th century thanks to the Rubino workshop, where farming tools, ammunitions (during the war period) and even some innovative cars had been fabricated for decades.

Resolutely desired, as well as built piece by piece, by Ugo Garzena, manager of BONO factory in Netro, the Museum of Iron exhibits a series of manufactured tools, machineries, drawings, the administrative documents and technical manuals which show the evolution of the metal-working manufacturing systems.

The Museum of Iron is open upon request every working day. It has already been visited by dozens of school classes, groups of enthusiasts and of tourists visiting the beautiful valleys between Biella and Ivrea.

Upon request, the Museum will plan live demonstrations of hot forging.

For further information please contact:
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Meet Us @...

**INTERPLASTICA 2015** - Moscow - Russia  
from 27 to 30 January 2015  
Plastics Technologies show

**AHR EXPO 2015** - Chicago, Ill - USA  
from 26 to 28 January 2015  
Heating, ventilation, air conditioning and refrigeration show

**IRE EXPO 2015** - New Orleans, La - USA  
from 24 to 26 February 2015  
International Roofing show

**JEC Europe 2015** - Paris - France  
from 10 to 12 March 2015  
International Composites conference & show

**UTECH Europe 2015** - Maastricht - Holland  
from 14 to 16 April 2015  
International Polyurethanes conference & show

**PLASTIC Japan** - Tokyo - Japan  
from 8 to 10 April 2015  
Plastics Technologies show

**INTERZUM** - Koeln - Germany  
from 5 to 8 May 2015  
International Furniture show

**POWERGEN 2015** - Amsterdam - Holland  
from 9 to 11 June 2015  
Electric Power conference & show

**CPI Conference 2015** - Orlando, Fl - USA  
from 5 to 7 October 2015  
Int’l Polyurethanes conference & show

**ADIPEC 2015** - Abu Dhabi - UAE  
from 9 to 12 November 2015  
Oil&Gas conference & show

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