FSK Awards Cannon President With the Gold Honour Medal

More Solutions for High Output PUR

Cannon Grows in Germany

Cannon Eurasia: 10 Years!

Cannon Ergos R&D for Rigid Foams

A World of Service

Rewarded Excellence
Great news for the Cannon Group and for its President, Marco Volpato: the FSK (Fachverband Schaumkunststoffe und Polyurethane e.V. – the German Industrial Association of Polymeric Foams Producers) has awarded him with the Golden Medal of Honour for his outstanding career in the field of the technology for Polyurethane foams. The very rare FSK prize has been the second in the history of Cannon: the previous Golden Medal was assigned to Carlo Fiorentini in 1984 for his research and achievements in the field of PUR mixing.

Excellence is also the subject of the article describing the new way followed by Cannon Afros in their daily search for better technological solutions, better quality of products and service, better training for their personnel.

Excellence is day-by-day's mantra at Cannon Ergos when designing larger and more sophisticated plants for Composites and Refrigerators. Every semester a new plant, more challenging than its predecessor, sees the light in Ergos large workshop.

Excellence is the target for Cannon Global Service, an international team of specialists assisting daily thousands of clients around the world. New training methods, new generations of technicians, new tools and solutions made available for all our clients.

Excellence drives Cannon Deutschland in their daily hard work in the lion's den, facing the World's most advanced competitors.

Excellence has been driving the participation of the Cannon Group to Milan's EXPO 2015 activities, within the frame of the events organised by ANIMA, the Italian Confederation of Mechanical Industry Associations. Hundreds of clients have, in the past months, ended their visit to one of the Cannon factories with a guided visit to Palazzo Italia and other key places of the exhibition.

We like to share our excellence with our clients: it's a mutual benefit – if they gain thanks to our solutions, we all gain!

Stay with us.
Editorial

A Rewarded Excellence

Great news for the Cannon Group and for its President, Marco Volpato: the FSK (Fachverband Schaumkunststoffe und Polyurethane e.V. – the German Industrial Association of Polymeric Foams Producers) has awarded him with the Golden Medal of Honour for his outstanding career in the field of the technology for the Polyurethane foams. The very rare FSK prize has been the second in the history of Cannon: the previous Golden Medal was assigned to Carlo Fiorentini in 1984 for his research and achievements in the field of PUR mixing. Read more about this award at page 15.

Excellence is also the subject of the article describing the new way followed by Cannon Afros in their daily search for better technological solutions, better quality of products and service, better training for their personnel. Read what Cannon Afros General Manager says at page 2.

Excellence is day-by-day’s mantra at Cannon Ergos when designing larger and more sophisticated plants for Composites and Refrigerators. Every semester a new plant, more challenging than its predecessor, sees the light in Ergos large workshop. Read about their latest achievements and R&D activities in the fields of rigid foams for insulation, at page 20 to 22.

Excellence is the target for Cannon Global Service, an international team of specialists assisting daily thousands of clients around the world. New training methods, new generations of technicians, new tools and solutions made available for all our clients. Read what the Tech Service Mgr. of Cannon Afros reports at page 21.

Excellence is the leit-motif played by Cannon Deutschland in their daily hard work in the lion’s den, facing the World’s most advanced competitors. See what their Managing Director says at page 14.

Excellence drives Cannon Eurasia activities in Russia since 10 years, and the acceptance of new challenges dealing with new industrial technologies: see how they celebrated in Moscow, at page 25.

Excellence has been driving the participation of the Cannon Group to Milan’s EXPO 2015 activities, within the frame of the events organised by ANIMA, the Italian Confederation of Mechanical Industry Associations. Hundreds of clients have, in the past months, ended their visit to one of the Cannon factories with a guided visit to Palazzo Italia and other key places of the exhibition.

We like to share our excellence with our clients: it’s a mutual benefit – if they gain thanks to our solutions, we all gain! Stay with us.

Produced by: Cannon Communication
Via Resistenza, 12
Peschiera Borromeo (Mi - Italy)

Editor: Afros S.p.A.
Via G. Sella, 3 - Milano - Italy

Edition: 10/2015

Editor-In-Chief: Max Taverna

Editorial Board: Bruno Fierro, Alessandra Leni, Heinz Meloth

communication@cannon.com

IN THIS NUMBER

Cannon Mixing Technologies 2-3

High Output Foaming Solutions 4-5

Russian Orders 6-7

RotoJig, a Smart Production Tool 8-9

Brief News 10

MCI Starts Reefers Production in Chile 11

Cannon Viking: Foaming Solutions 12-13

Cannon Deutschland: Ready to Grow! 14

FSK Awards Cannon President M. Volpato 15

AFROS Technical Services 16-17

Cannon & Safemen for IKEA Shelters 18-19

Cannon ERGOS: the Large Presses Specialist 20-22

Petrogas & ARTES in Turkmenistan 23

Shinnon Grows! 24

Cannon Eurasia Turns 10! 25

R&D for Rigid Foams 26-27

The Plastic Collection Reopened! 28

www.cannon.com
ONCE FULLY DEDICATED TO THE DEVELOPMENT AND MANUFACTURE OF EQUIPMENT FOR REACTIVE POLYURETHANES, CANNON CELEBRATES ITS 50TH ANNIVERSARY HOLDING A PORTFOLIO OF METERING AND MIXING TECHNOLOGIES FOR A WIDER RANGE OF CHEMICAL FORMULATIONS.

THIS IS A SECTOR IN RAPID EVOLUTION, CHARACTERISED BY AN ANNUAL RATE OF GROWTH UNCOMMON BETWEEN OTHER POLYMERS AND PLASTICS. WE ANALYSE THIS FASCINATING NICHE MARKET OF THE INDUSTRIAL CHEMISTRY, TOGETHER WITH THE CULTURAL AND ORGANISATION ADAPTATIONS REQUIRED TO APPROACH IT SUCCESSFULLY, WITH MAURIZIO CUSINATO, GENERAL MANAGER OF CANNON AFROS, THE GROUP’S MOTHER COMPANY DEALING WITH REACTIVE FORMULATIONS TECHNOLOGIES.

Cannon News: Can we start with a brief overview of your professional profile?

Maurizio Cusinato: Born in 1958, I obtained my degree in Mechanical Engineering from the Politecnico of Milano in 1983. I joined Cannon Afros in September 1990, starting my career in the Technical Office. After a few years I moved to the Manufacturing Department, where I gradually climbed the whole hierarchical ladder until I was appointed GM of the Company in 2013.

CN: What can you say about this past quarter of century as far as the main object of your activity is concerned?
MC: I have witnessed in the past 25 years a great deal of evolution in the field of equipment and technology for the production of Polyurethanes. Talking in general, the demand for this kind of equipment has seen a continuing evolution in terms of number of formulations, of process, of output range. First of all, we do not deal anymore only with PUR, but other families of reactive formulations have seen the light and are on a rising status: Epoxy, HP RTM, DCPD, Silicones, Glues, not the mention the evergreen Phenolics. We have promptly developed the proper solutions also for these other chemicals and they do represent today a good percentage of our business.

CN: And what has changed on the approach from the client’s side?
MC: We definitely have to face a rising demand for equipment that lasts longer in service: our clients are more and more cost-conscious and want machinery that will be able to handle a certain type of chemicals today and a different one in five years from now, without being forced to invest in new equipment when their needs in terms of formulations will change. This goes hand in hand with another rising problem: the increasing number of Companies which cut resources on the day-by-day operation and on the periodical maintenance of their equipment. For cost reasons they tend to use non-skilled operators to run the machines, to outsource the maintenance to general service teams or simply they do not replace their good old service man when he retires. They expect more from their suppliers in terms of reliability and, during the machine’s lifetime, of service. This requires a great deal of flexibility from our side, both in terms of capacity of short-notice intervention when one machine stops and on the application of guarantee coverage and service fees when the problem has been solved. We have developed a special relationship with most of our customers on these matters, and that’s why they keep coming to us.

CN: How could your organisation adapt to these new demands?
MC: By improving the quality of our offer. Working with a more professional approach to the study, design, manufacture, field testing and after-sale service of our equipment. We made a massif effort in the whole process concerning the manufacture of mixing heads, the heart and most critical component of any chemical reacting polymer’s process. A specific department of our technical office has always worked only on the design of heads: this sector has been reinforced with new, young professionals very qualified in fluid dynamics, precision mechanics, thermal treatments of metals, new construction materials. The manufacture of heads is so strategic that we have now 100% incorporated the specialised workshop which machines our heads, investing several million Euros in new, innovative numerically-controlled manufacturing time thanks to a reduced manipulation of the single parts. All these applications will see soon a new, innovative product generated by this new space.

MC: We have selected a small number of external suppliers able to provide specific treatments or special components – such as valves, injectors, stream distributors – that allow us to extend the output range. First of all, we do not deal anymore only with PUR, but other families of reactive formulations have seen the light and are on a rising status: Epoxy, HP RTM, DCPD, Silicones, Glues, not the mention the evergreen Phenolics. We have promptly developed the proper solutions also for these other chemicals and they do represent today a good percentage of our business.

MC: We definitely have to face a rising demand for equipment that lasts longer in service: our clients are more and more cost-conscious and want machinery that will be able to handle a certain type of chemicals today and a different one in five years from now, without being forced to invest in new equipment when their needs in terms of formulations will change. This goes hand in hand with another rising problem: the increasing number of Companies which cut resources on the day-by-day operation and on the periodical maintenance of their equipment. For cost reasons they tend to use non-skilled operators to run the machines, to outsource the maintenance to general service teams or simply they do not replace their good old service man when he retires. They expect more from their suppliers in terms of reliability and, during the machine’s lifetime, of service. This requires a great deal of flexibility from our side, both in terms of capacity of short-notice intervention when one machine stops and on the application of guarantee coverage and service fees when the problem has been solved. We have developed a special relationship with most of our customers on these matters, and that’s why they keep coming to us.

MC: We made a massif effort in the whole process concerning the manufacture of mixing heads, the heart and most critical component of any chemical reacting polymer’s process. A specific department of our technical office has always worked only on the design of heads: this sector has been reinforced with new, young professionals very qualified in fluid dynamics, precision mechanics, thermal treatments of metals, new construction materials. The manufacture of heads is so strategic that we have now 100% incorporated the specialised workshop which machines our heads, investing several million Euros in new, innovative numerically-controlled manufacturing time thanks to a reduced manipulation of the single parts. All these applications will see soon a new, innovative product generated by this new space.

Visit Cannon Afros website and discover a wide range of solutions for Polyurethanes, Epoxy resins and other reactive formulations!
They are going to replace the second generation of specialists of Afros in various departments: R&D, Technical office, Production, Tech Service and Sales. We are using the same approach, for other professional profiles, cooperating with the local Technical Institutes: we hired at least 5 new technicians in the past 2 years for our Production and Testing teams.

We give everyone even opportunities of professional development and career: who is worth can emerge and take responsibility, independently from sex, age or seniority in place. This is working, and the results are coming.

**CN: How do you solve the problem of the Knowledge Transfer, one of the greatest worries within a technological Company?**

**MC:** We form the new recruits putting them side-by-side with the personnel which is due to retire in the next 4-5 years, absorbing all their skill and tricks of the trade. And we let them regularly attend training courses and seminars regarding their specific specialisation.

Our Technical Office engineers are trained more as Process – rather than Product – Specialists. They live the technology by participating to the developments generated by their R&D colleagues, then tightly cooperate with the Production Department with an hands-on approach, to understand the difference between theory and lean manufacturing, then they visit our customers with an skilled After Sales technician to see how the whole set of applied theories works or fails in real life stress. The collected experiences are then saved and shared with the rest of the organisation in a common database, to leave a record able to define a solution for every possible problem. The individual know-how, once very dispersed throughout the Company, is now collected and rationalised in a shared repository. This allows to generate a more complete set of documents to support the future work of different professional profiles. We have reached a satisfactory level of internal communication and knowledge transfer among the various functions of our organisation.

**CN: What is your next new product deriving from this new approach?**

**MC:** We are very committed in any application involving Epoxy formulations, both for low pressure infusion for aeolic blades and high pressure injection for HP RTM, mostly used for automotive composites. Also the niche of High Output Low Pressure machines is quite appealing for us. And the spray foams market for automotive parts. All these applications will soon see a new, innovative product generated by this new integrated approach that we have discussed till now.

**CN: A very thorough portrait of your organisation, thank you for your time and... keep on going!**

**MC:** Thank you and, as I keep saying, We Never Give Up!

---

maching equipment, new technical management, new assembly and testing areas and procedures. We more than doubled the mechanical precision of our mixing equipment, significantly reducing their manufacturing times thanks to a reduced manipulation of the single parts to an enhanced automation of the whole process.

**CN: Can you disclose some figures regarding this specific activity?**

**MC:** We manufacture more than 1,000 mixing heads per year. About 33 different models are currently available. Their output capacity covers a range between 25 grams/second of the small FPL 7 to 6,600 grams/second of the large FPL 32. We estimated that 28,000 FPL mixing heads have been sold all over the world and for almost every known application. Plus all other models, including the historical RIM head for reinforced formulations, the more recent JL model for insulation foams, etcetera. We have selected a small number of external suppliers able to provide specific treatments or special components - such as valves, injectors, stream distributors - that allow us to extend the guarantee of our mixing systems up to one million shots in optimum working and service conditions. In the past 10 years we have invested more than one million Euro per year only in the improvement of the whole design-manufacture-testing process.

**CN: What has been the contribution of R&D to this evolution?**

**MC:** It has been simply fundamental. Multi-faceted in terms of applied disciplines, and deriving both from internal intuition and from the requests of our customers. We count today more than 10 specialists working exclusively on the mixing technology, both in our R&D facility and in the Technical Office. These new forces have brought innovative ideas and tougher standards into the design of new heads.

For instance, we apply today both predictive analysis - that is trying to foresee the life time of a new head without putting it in operation with chemicals – and characterisation of mixing efficiency, by using the head intensively with a wide range of chemical formulations and output and pressure ranges. Then, when things look good, we apply more stress, pushing the head to a limit that will never be attained in normal manufacturing conditions. When these tests are passed, we know we can rely on the head and we send it to some special customer who will test it in the field for us, assisted by some of our specialists. When it's customer cleared, it's good for the Production Department. All the resources of the Company are involved in this new working method, and we are satisfied with the results.

**CN: Which is today the most satisfactory mixing head, in terms of commercial results?**

**MC:** I’d say the FPL SR in the refrigerator foaming business.

It is performing extremely well in terms of reliability, life time, mixing efficiency and foam quality. Its laminar flow limit is today double than that of a corresponding classic FPL model, in terms of working output, and this allows our clients to use it with very fast-reacting formulations, improving their productivity and their return on their investment.

**CN: Let us talk briefly about the human aspect involved in this new method of work, which requires new professional profiles. How are you organising Afros at this respect?**

**MC:** We have tightened our relationship with the Politecnico di Milano, one of the best sources of Engineers in Europe. We test many of them with a 6-month paid stage during which they get familiar with the requirements and the habits of the house. Then we keep the best ones with a permanent contract. In the past 3 years we hired 15 of them, coming from the Mechanical, Aeronautic, Automation specialised schools.

---

An aerial view of Cannon Afros factory in Caronno Pertusella, 20 km north of Milano, Italy.
High-Output Foaming with a Low-Pressure Machine: More Solutions Are Available!

NUMEROUS POLYURETHANE FOAMING PROCESSES REQUIRE TODAY DOSING MACHINES ABLE TO METER THE FORMULATION AT A VERY HIGH OUTPUT RATE. SEVERAL TECHNICAL AND ECONOMIC REASONS ORIENTATE THE MANUFACTURER TOWARDS LOW-PRESSURE METERING UNITS, ABLE TO PROVIDE FAST FOAMING CYCLES WITH A LIMITED INVESTMENT. CANNON OFFERS SEVERAL DIFFERENT TECHNICAL ALTERNATIVES FOR THESE APPLICATIONS.

The manufacture of sound- and thermally-insulated roof liners for automotive demands an increasing volume of a special semi-rigid foam grade. Produced in large blocks by the discontinuous foaming method, this foam is produced in open moulds at a density around 100 kg/m³. When duly cured it is cut to measure in 6-8 mm thick slices which are then thermoformed. This operation is required for two reasons: to give to the foam slice the right shape of the car’s roof and to allow for the simultaneous application of the decorative textile liner that the passengers will see above their heads when sitting in the vehicle.

Only perfect foams are accepted
The peculiar application demands for a visually-perfect foam, free from pinholes and voids and characterised by a very homogeneous structure of fine, small, round cells: it isn’t a secret, a good dispersion of air in the Polyol provides the most uniform cell structure in the final foam. But this is not easy to obtain in a low-pressure circuit, whereas it works much better with an high-pressure dosing machine.

Modern car roofs are becoming more complex than in the past: a rising number of inserts to be firmly positioned between the liner and the roof, including larger flat ducts for air conditioning, exert a toll on the shape and the structural resistance of the roof liner. Therefore the foam quality plays a fundamental role for the obtaining of a thin, sturdy roof liner.

Low-pressure foaming, still a good solution
The formulations that provide the required uniform cell structure are characterised by a very fast reactivity. Since the quantity of material that must be dispensed for a single block is high it is therefore necessary to utilise dosing machines able to pour at a nominal output of at least 300-500 kg/minute, otherwise the foam would start to rise in the mould before the end of the pouring, spoiling the quality of the foam block. Technical and economic reasons have always orientated the choice of the dispensing machine towards the low-pressure models, able to supply the required output of formulation at an acceptable investment cost. Low-pressure mixing technique requires the use of a liquid cleaner to flush the large mixing head at the end of each shot, which is the real downside of this technology for both cost and environmental reasons.

Flexibility is much appreciated
In general, these foaming operations only occupy a machine for very few hours per day. The foam blocks are produced in sequence, using a certain number of simple wood boxes as moulds. Then the blocks are left to mature for a few hours, before being sliced with automatic cutting machines.

When a roof liner producer supplies different OEMs or produces parts for very different models, it is a very common practice that he requires a change of formulation between two lots of foam blocks. Therefore, to avoid expensive flushing of the components tank every time that a new formulation must be loaded in the machine, it is quite common to dedicate a specific dosing unit to each quality of chemicals.

An expensive solution from many points of view (investment, space occupancy, maintenance etc.) that can be replaced with a more economic one.

Several Cannon alternatives for a more rational approach
All this said, it is interesting to consider the wide range of options that Cannon have developed for this interesting application after several years of intensive activity in this specific niche market.

High-output low-pressure equipment is today available from Cannon in several different flavours, each of them bringing specific advantages to the end user.

The Classic: C300 and C500 series
Sold worldwide for more than 20 years, the classic largest low-pressure dosing units of Cannon provide a suitable solution also for the most demanding foams. Characterised by a configuration with one Isocyanate and one or two Polyols, they provide the highest output values, allowing to fill a 2x1x1 meter box mould with a formulation that provides a 100 kg/m² fine cells foam, with a shot time between 25 and 40 seconds.

Its configuration has been recently redesigned to allow for the use of two different Polyols with one Isocyanate.

This design solves the flexibility problem described in the previous paragraph: one machine with three component circuits, ready to dispense at any moment two very different formulations, optimises the return on the investment, the use of factory space, the spare parts and maintenance inventory etc.

The classic output control with mechanical variator has recently been replaced by an electronic inverter allowing for faster and more precise change of total output and of component’s ratio, controlled by a commercial PLC and assisted by a set of very reliable flow detectors.

These are very sturdy machines, available at a very convenient price and affordable also in markets where the operators are not very skilled.

The Hybrid: AB 500
The same one- or two-Polyols configuration of the C500 series characterises this modern machine, featuring high-pressure metering gear pumps used at around 80-90 bars of pressure. The special feature of the AB 500 series is the hybrid method used for mixing the components. The special OptiMix head mounted on this machines is designed with a first high-pressure mixing chamber fitted with injectors, where the components are blended by impingement at an high turbulence rate.
At the exit of this chamber a classic low-pressure mixing head with high-speed mechanical stirrer is mounted. The blend is mixed again and dispensed in the open mould at a reduced rate of turbulence. At the end of the shot the low pressure section of the head is flushed, first with pressurised air and finally with an EcoCleaner, a water-based hot cleansing solution that removes all traces of Polyurethane from the chamber and the stirrer.

Why using high pressure in the first stage of dosing and mixing? Simply because when using high pressure a very good nucleation of air can be obtained, with splendid results in terms of cell’s size, uniformity and reduced presence of pinholes and voids in the foam.

This improved foam quality helps to solve the thermoforming problem described in the first part of this article: a significant processing improvement has been obtained, allowing for the thermoforming operation of the roof liners to be run in a single pass. It has been very common in the past to execute this operation with two separate forming passes, even using different female moulds, but nowadays economic and technical reasons mandate for a single forming operation.

And this was obtained thanks to the OptiMix head!

It’s also worth mentioning that this head features four recirculation grooves in the hydraulic piston which operates the mixing chamber. These grooves can handle four flows of components: one Iso, two different Polyols, one fire-retardant additive – that can be a solid like EG (Expandable Graphite) or Melamine dispersed in the Polyol. Immediately after this high-pressure section, the low-pressure mixing chamber can accept different colours and other additives, tremendously increasing the flexibility of this production tool.

Cannon Viking Blockmatic Technology for Semi Rigid Foams

CANNON VIKING HAVE BEEN MANUFACTURING AND SUPPLYING THE BLOCKMATIC RANGE OF SINGLE BLOCK (BOX) FOAMING MACHINERY FOR MORE THAN 30 YEARS WITH MORE THAN 200 MACHINES IN DAILY OPERATION WORLDWIDE. ORIGINALLY THE EQUIPMENT WAS DESIGNED AND SUPPLIED FOR THE PRODUCTION OF FLEXIBLE FOAM BLOCKS USED FOR FURNITURE APPLICATIONS WITH MANY SUCCESSFULLY DELIVERED TO MATTRESS AND FURNITURE PRODUCERS AROUND THE WORLD. IN RECENT YEARS THERE HAS BEEN A GROWING DEMAND FOR THIS TECHNOLOGY TO ALSO BE USED FOR THE MANUFACTURE OF RIGID AND SEMI-RIGID FOAM BLOCKS.

One area of growing demand has been the application of semi-rigid foams for sound insulation and head liner use in the automotive industry where there is a requirement for low density foams with high fire retardancy.

One project example has been the supply of a special Blockmatic single block machine delivered to a major Tier One automotive supplier in the USA who is using the Blockmatic technology to manufacture low density semi rigid foam blocks impregnated with EG (Expandable Graphite) for sound insulation components in engine compartment of automobiles.

With these applications where graphite is used Cannon Viking developed a unique design of Blockmatic mixing chamber using a removable liner for fast and simple cleaning.

The Blockmatic technology is available in a wide range of capacities to suit the foam block mould / box size and foam type. This equipment has been supplied to the chemical raw material suppliers laboratories, for low output trials from a 30 kilo shot, up to equipment in production with clients requiring a 200 kilo shot capacity for high density rigid foam blocks.

The Blockmatic technology enables the capability of high volume production with the possibility of handling a wide range of filler materials such as graphite.

All Cannon Viking equipment is of a modular design and a Team of highly experienced Engineers are on hand to assist with providing a dedicated custom equipment package to suit each client’s foam block requirements.
**Third V.A.I. Plant for Haier, in Russia**

**V.A.I. Technology for high-quality refrigerators**

Energy efficient refrigerators are obtained through a smart combination of modern compressors and highly-efficient insulation. Haier has been producing them since 2011 with two Cannon foaming plants operating in Chongqing and Qingdao, China. A special feature of these foaming plants is represented by the use of negative pressure (vacuum) within the refrigerator’s wall cavity during the injection of the foam and the relevant filling time. By applying vacuum into the complex mould cavity where a domestic refrigerator is filled with rigid Polyurethane, the V.A.I. technology facilitates the expansion of the foam into the cabinet, providing substantial benefits:

- **Increased productivity per foaming station**: thanks to the use of highly-reactive formulations that provide a faster demoulding time, a 135-second curing cycle is now the reference for a wall thickness up to 10 cm.
- **Optimised distribution of foam throughout the whole cabinet**: a uniform density of 33 +/- 1 kg/m³ is constantly achieved.
- **Substantial foam savings: up to 6%** are regularly obtained in a fine-tuned plant.
- **Optimum insulation performances**: the foam Lambda value is as low as 18.6 +/- 1 mW/m °K with CycloPentane as blowing agent.

**Third V.A.I. plant for Haier, first in Russia**

Exploiting the positive results obtained in China, Haier confirmed their trust in this Cannon solution and ordered their third V.A.I. plant with eight foaming and polymerisation lines, a complete premixing station to prepare the Polyol-CycloPentane blend, one A 200 PentaTwin dosing unit able to feed simultaneously two FPL SR 26 mixing heads, each of them serving four foaming jigs. The complete air extraction system and the whole set of safety completes the configuration of this innovative production plant. A tight cooperation between Cannon Far East – the Group’s Unit operating in Asia – and Cannon Eurasia – Cannon’s direct branch in charge of the immense Russian territory – allowed for the successful achievement of the complex contract.

Once again, Haier will be using PASCAL, the appropriate Polyurethane chemical formulation developed by The Dow Chemical Company (Dow) for this vacuum-assisted foaming technology.
Third Step of CFC Phasing-out Programme in Russia

CANNON WAS AWARDED WITH SEVERAL CONTRACTS FOR THE REPLACEMENT OF OUTDATED FOAMING EQUIPMENT IN THE CSI, UNDER AN “UMBRELLA ORDER” ADMINISTERED BY UNIDO, THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

INNOVATIVE FOAMING MACHINES AND PLANTS WILL HELP IN THE REPLACEMENT OF SUBSTANCES THAT ARE NOXIOUS FOR THE STRATOSPHERIC OZONE LAYER.

The third step of the international programme inspired by the Montreal Protocol, aimed at the replacement of all Ozone-depleting substances, is actively implemented also in Russia.

The local UNIDO office has launched a tender for numerous projects to be started within the year 2015, and Cannon was awarded with some significant orders, destined to large and medium Russian companies manufacturing domestic and commercial refrigerators or insulated pipes for the oil & gas industry.

ITZ SKOROPUKOSVSKY LLC located 60 km from Moscow is one of the largest Russian manufacturers of insulated pipes for oil & gas transport, supplying giant prospectors as Gazprom and TransNeft. Their typical product is a 12-meter long, 1.4 meter diameter steel pipe insulated with 20 cm of rigid Polyurethane foam. An external plastic (HDPE) liner protects the foam layer, which is obtained pouring at high output the formulation from one of the pipe’s ends, between the steel and the liner. With this method no moulds are required: the round section of the HDPE liner provides the containment of the expanding foam and ensures its even distribution around the inner pipe. This foam is expanded with Ecomate® (Methyl Formate), a blowing agent that has a neutral impact on the environment without contributing to global warming, Ozone depletion or smog production.

Cannon supplied for this contract a large high-pressure dosing unit, an A-System able to dispense 450 kg/minute of formulation, that is stored in two 1,000 litre tanks.

The special pumps and the L30 mixing head supplied with this order are Chromium-treated and hardened to provide resistance against acidic corrosion, ensuring a long-lasting operation time for this demanding application.

TPK ORSKY PLANT LLC, based in Orsk – 1,700 km south-east of Moscow, near the border with Kazakhstan – is an historical Russian leader in the manufacture of domestic refrigerators.

The Company, once a member of the Merloni Progetti Group, is a Cannon customer since many years: their existing 12-fixtures cabinet line and dosing unit required a radical refurbishing to allow for the use of Hydrocarbon blowing agent (Pentane).

The whole conversion kit – that includes two PentaEasyFroth premixing units, a buffer tank for the formulated polyol, all the gas detectors and containment boxes for dosing unit and ancillary equipment and the required electronic safety system – has been supplied by Cannon and will be installed before the end of 2015 by the Tech Service team of Cannon Eurasia.

JSC KZH BIRYUSA produces domestic refrigerators and will very soon start their new foaming equipment using Pentane.

For the conversion of the “wet” side of their plant of Krasnoyarsk, Siberia, they will install four PentaTwin double dosing units with six PPL SR 18 mixing heads. Also in this case it will be installed by the Tech Service team of Cannon Eurasia before the end of 2015.

JSC COMPANY POLYUS is located in Joškar-Ola, the capital city of the Mari El Republic, Russia.

The company manufactures commercial refrigerators, refrigerated vitrines and display cases for restaurants and supermarkets. In the first months of 2016 they will start using a new foaming plant supplied by Cannon, including two specially-designed polymerisation jigs by Cannon Ergos and one A-System 200 Pentane-capable dosing unit fitted with a FPL SR 24 mixing head.
FISHER & PAYKEL HAS BEEN DESIGNING PRODUCTS SINCE 1934 AND HAS GROWN INTO A GLOBAL COMPANY OPERATING IN 50 COUNTRIES AND MANUFACTURING IN NEW ZEALAND, CHINA, THAILAND, MEXICO AND ITALY. A MEMBER OF THE HAIER GROUP SINCE 2012, FISHER & PAYKEL HAVE ALWAYS KEPT A TIGHT RELATIONSHIP WITH CANNON FOR THEIR FOAMING EQUIPMENT. THIS YEAR THEIR THAILAND PLANT HAS BEEN SUPPLIED WITH ONE OF CANNON’S LATEST DEVELOPMENTS IN TERMS OF POLYMERISATION FIXTURES, THE ROTOJIG. READ MORE BELOW…

Fisher & Paykel’s design heritage is founded on a pioneering spirit and a culture of curiosity that has challenged conventional appliance design to consistently deliver products tailored to human needs. One of their most relevant cultural traits is their commitment to ongoing research and development. For this reason, since they are part of the Haier Group, they have been able to evaluate in depth the most recent developments experimented by their parent company’s R&D. One of the latest, designed by Cannon, involves the use of vacuum in mould during the injection phase. (Read more about this V.A.I. technology in the article below). In order to optimise the use of Vacuum Assisted Injection Cannon suggests to use a special polymerisation fixture, the Rotojig, which is composed by two complete foaming jigs mounted on the opposite sides of a rotating rectangular platform.

Cannon supplied in 2015 one of these innovative lines to Fisher & Paykel Thailand, where it is used for new model’s development and regular production.

The innovative features of this new equipment and its intrinsic advantages will again contribute to reinforce Fisher & Paykel’s competitiveness on their markets in the year to come.

### RotoJig, a Smart Production Tool

The fast cycle time obtained with a V.A.I. (Vacuum Assisted Injection) allows for the positioning of two foaming jigs, one above the other, in the same foaming station: the service time – that includes cabinet loading, jig closure, foam injection under a partial vacuum, jig opening and foamed cabinet’s extraction – is in fact equivalent to the polymerisation time of the foam within the refrigerator walls. It is therefore convenient from the point of view of investment in hardware, space occupation, energy consumption and cycle times – to superimpose two foaming jigs (one of them mounted upside-down) on a mould-carrying structure rotating by 180° at the end of the injection.

The polymerisation occurs in the jig at the upper level of this structure, while a cured cabinet, hosted in the other jig, is removed from the lower station. A new cabinet ready to be filled with foam is introduced immediately after in the lower jig, the injection takes place and the platform rotates it as soon as the foam’s gel time has been reached.

The distribution of foam within the fridge’s walls is greatly helped by the use of vacuum during the injection, and the rotation of the polymerisation station does not spoil it because it is executed when the foams is already firmly set in the wall’s cavity.

View a videoclip of a Rotojig fixture in operations!
A New RotoJig for Mexican Innovative Refrigerators

A major Mexican refrigerator manufacturer will start in 2016 a new foaming plant based on the latest Cannon development in the field of high-productivity refrigerator fabrication. A two-fixtures RotoJig will be used for the first time in America in combination with the high-output “mouth down” injection system: four mixing heads will simultaneously inject the rigid polyurethane formulation in the four corners of a cabinet, providing the very fast filling operation demanded by modern, fast-reacting foams.

One of the world leaders in refrigerators has been cooperating with Cannon in numerous development projects since decades. One of the latest joint efforts has been the definition of the optimum hardware required to perform the so-called “mouth down” injection method with four heads injecting simultaneously at high output in the walls of a fridge positioned with its door side (the mouth) towards the floor. Already used for many years by the Japanese fridge manufacturers, this method allows to use very fast-reacting formulations, achieving the complete filling of a large cabinet with all the desired foam – up to 8-10 kgs – well before this starts its expansion. This high reactivity produces a very fine structure of thin and regular foam cells, which improves the thermal insulation properties and the dimensional stability of the cabinet.

Cannon developed the new double foaming fixture during the development work of the Vacuum Assisted Injection foaming technology. (You can read more on this innovative production tool at page 8).

The new RotoJig proved to be an optimum solution for “mouth-down” foaming and fast formulations: the double polymerisation fixture is an ideal solution when the polymerisation time corresponds to the sum of all other service times! This timing factor allows for the cure of one filled cabinet in the fixture located on the upper section of the foaming station, while in the other fixture, located below, all other operations (unloading, loading, foam injection) occur at the same time. One piece of equipment, although more sophisticated than a standard foaming fixture, does the work of two! Significant economies can be obtained in terms of equipment investment (fixture, pre-heating oven, conveyors, head carriers etc.), footprint of the foaming line, maintenance and spare parts inventory.

The empty cabinet enters into the lower fixture with its “mouth” up. The fixture closes, the platform holding both jigs rotates by 180° and the fridge is now positioned “mouth down”. A metal frame supporting the four heads is lowered towards the four injection holes: the positioning of each head is numerically controlled with pneumatic actuators, according to the model to be foamed. The foam injection occurs in less than two-three seconds and the polymerisation starts. In the meantime, in the lower part of the foaming station, a cured cabinet is extracted from the jig, an empty one takes its place and the fixture is closed, ready for another rotation of the platform.

Determined to put this proven foaming method in production and convinced from the good performances provided by the new RotoJig with these fast formulations, the multinational client ordered to Cannon a complete foaming plant for their Mexican factory. One RotoJig will be fed by four 100 kg/min high-pressure dosing units, all operating in closed-loop control and linked among them with a master-slave electronic logic. These sophisticated dosing units are connected with four FPL SR 18 mixing heads mounted on a pneumatically-lifted supporting frame. These new heads provide superb performances due to the design of their injection’s chamber cleaning piston: its scraping profile cleans the discharge duct of the head without creating friction heat, a “must do” for any head handling modern, fast reacting (but also quite sticking!) formulations.

The most interesting aspect of this new configuration is the fact that all the existing peripheral equipment (feeding lines, unload conveyors, heating ovens) can be reutilised without any modification: a non-negligible advantage for a factory equipped with machines still functional to function perfectly!

The flexibility of the double-fixture system is further enhanced by the presence of a mould-change system positioned on the upper portion of the station, which quickly replaces a complete set of tools (side walls, compressor and top walls, inner plug) in a very short operation. All movements of the RotoJig are performed with electric motors for a better control and precision, guaranteeing reliability in operation and a low level of noise in the production hall.

The plant will be delivered in January 2016, to be started-up by the first quarter of the year.
Wind Power: Repeat Orders for Dispensing and Gluing Equipment

EXCELLENT PERFORMANCES AND PROMPT LOCAL SERVICE WERE THE REASONS THAT GRANTED TO CANNON AFROS’ REPEAT ORDERS FROM PRESTIGIOUS INTERNATIONAL CLIENTS FROM THE WIND POWER INDUSTRY.

IF IT’S TRUE THAT THE MOST DIFFICULT ORDER TO CONQUER IS THE SECOND, WE CAN ASSUME THAT CANNON AFROS DID A GOOD JOB WITH THE FIRST!

The Indian giant manufacturer GAMESA confirmed their third lot of infusion machines for Epoxy formulations. Technical excellence from the machines already in production at Gamesa’s facilities all around the world, and prompt, competent local service convinced the customer to confirm their trust in Cannon Afros for a third lot of similar machines.

CARBON ROTEC, the famous German producer of wind blades, also repeated an order to Cannon Afros for a very sophisticated and totally customised infusion system for resin mixing and distribution.

PUR Grommets, A Growing Market Niche In Car Industry


Moulded grommets, made in rubber, soft plastics and expanded polymers, are commonly used today. To speed-up operations in assembly lines, grommets are moulded over a pre-assembled bunch of cables, allowing the operator to insert the whole kit through the car body in a few seconds. Polyurethane foams are increasingly used for the production of automotive grommets. Their reduced density and high mechanical resistance provide an optimum solution for this application. The very large range of different kits that must be produced in just-in-time conditions, working on irregular inserts composed by a variable number of cables or pipes, requires skilled operators and a high degree of visual control to avoid faults in manufacturing. The industry demands for more automated equipment and smarter moulds for this specific technology.

A whole range of tools is available at Cannon!

Providing a turn-key solution, with a single interface and responsibility for the whole working island, has become the sole method for securing a rising number of projects derived from the continuing development of these PUR grommets. Cannon offers dedicated solutions for this specialised operation, where sophisticated moulds and electronic identification procedures are utilised to safely couple the cable kit with its own PUR pouring programme. Typical moulded densities range between 600 and 700 g/liter, with average moulded parts weighing 50-100 g. Compact mixing heads ensure optimum foam properties to the sophisticated formulations that have been studied for this market.

Cannon supplied numerous dosing units, moulds and ancillary equipment to major players in this market located in Europe, Mexico, North and South Africa. The availability of the complete range of equipment required by this application puts Cannon in the privileged position of One-Stop-Shop supplier for the producers of grommets.

Enquiries are welcome!
**MCI Starts Reefers Production in Chile**


Maersk Container Industry (MCI) has invested several years of planning, engineering and hard work, as well as around USD 200 million, in San Antonio, 5th Region, Chile to build the first reefer container factory in South America. MCI San Antonio (MCIS) completed test production and calibration in May to assure that quality and safety live up to its world class standards.

The new factory is set to gradually ramp up production in the coming years to 25,000 reefer containers, integrated with Star Cool reefer machines also produced locally. Once operating at full capacity, MCIS has a potential to increase capacity to 40,000 units.

Located on the west coast of South America, one of the regions with the highest demand for refrigerated food transportation, the 330,000 m² factory – currently occupying around 1,000 employees – will supply reefers where and when they are mostly needed. Repositioning costs will be reduced for shipping lines and containers availability improved.

**An outstanding design for the Cold Chain**

The reefer containers are insulated with a thick layer of rigid Polyurethane foam that guarantees superior thermal performances to maintain the transported food (fruit, vegetables, poultry, meat and fish) at the right temperature up to their point of destination. The rigid foam is injected into metal-faced sandwich panels that are manufactures in dedicated foaming and polymerisation lines, to be assembled and locked together once all the components – side walls, roof, floor, front swinging doors and rear side (hosting the reefer cooling machine) – have been made ready.

**Cannon supplied the whole foamig line**

As already reported in the past editions of the Cannon News, the contract for the whole foaming line was awarded by MCIS to Cannon after a thorough comparison of the technical and economic proposals made by several potential suppliers. Cannon was chosen because of their experience in large panels manufacturing, combined with a competitive quotation and the reliability of their organisation. The manufacture of nine large Manni polymerisation presses, six special high-pressure Cannon Afros dosing units, more than 20 large mixing heads, the whole set of infrastructures and safety devices was, in fact, only a part of the effort!

**A major logistics effort**

Once ready in Italy, all this material was stored in 87 containers, shipped to Chile by sea, forwarded from the harbour to the new factory, installed and tested.

The whole operation took 40 weeks, with the direct involvement of 25 specialists (mechanics for the assembly, electricians, electronics, piping fitters, wet- and dry-side testing technicians, logistics clerks, safety engineers and managers).

The job demanded for a major logistics effort, made with the cooperation of MCIS, going from the rental of numerous apartments and vehicles for the personnel up to the organisation of the procedures for the fulfilment of the severe norms dictated by the Chilean laws on worker’s safety.

Numerous modifications to some peripheral’s layout had to be implemented in situ, with a great effort of cooperation between MCIS and Cannon personnel.

A lot of local engineering had been planned in advance for the construction of carpentry parts, fumes extraction systems and piping for chemicals. To handle the supply of these parts a number of local firms and workers had to be contracted and coordinated.

A very complex pattern of different projects – profiling, bending, welding and painting plant for metal structures, the Star Cool refrigerator’s manufacture, the whole final assembly and testing line, etc. – was running in parallel and every delay in one of them would have spoiled the final deadline or the quality of the final product.

**At the end, a very satisfied customer!**

At the end, all went well: the foaming line was tested before the end of 2014 and accepted with satisfaction by MCIS. Cannon ended their job ranking first among tens of foreign and local suppliers of sub-parts of the factory, obtaining the signature of the final acceptance in April 2015.

The high productivity of the foaming line enables an output of one finished 40’ reefer container every 10 minutes!

**Something to remember**

What lessons were learned by Cannon at the end of this major effort?

Once again, Team Work plays a fundamental role in the success. The six Cannon Companies involved in this project cooperated like the players of a well-directed orchestra, motivated by the achievement of a common final goal rather than by the individual interest of their own Company or Division.

Human resources able to provide positive inputs and practical help were available from different Group Units and their combined efforts were successful.

Then, **good planning is never good enough.** Installing such a complex plant on the other side of the World is a task that – in spite of good planning and organisation – still presents a number of obscure areas that only at the end of the job will be clarified and quantified.

The experience grown in these overseas projects by other group’s Companies operating in different fields of the industry helped in recognising in advance some potential pitfalls present in any installation project. Quoting and planning for these unexpected events requires a good dose of hands-on experience.

Last, **cooperation with the customer is the keyword for success.** The staff of MCIS in San Antonio should be commended for their mental aperture and cooperative approach during all phases of this demanding job.

Gracias, amigos!
Gel is Helping to Refresh the Memory!

AN INCREASING NUMBER OF CUSTOMERS HAVE CONTACTED CANNON VIKING ABOUT THE LATEST TREND IN THE PRODUCTION OF VISCO-ELASTIC OR MEMORY FOAMS. THE INTRODUCTION OF NEW VISCO-ELASTIC APPLICATIONS INCORPORATING GEL OFFER NEW MARKET OPPORTUNITIES TO EXISTING VISCO PRODUCERS, ESPECIALLY IN AREAS OF THE WORLD WHERE EXTREME CLIMATE CONDITIONS CAN OFTEN MAKE VISCO-ELASTIC MORE UNATTRACTIVE DUE TO ITS HEAT RETENTION PROPERTIES.

Gel foams are a result of previous developments in the medical industry where gel was used in foams to prevent and alleviate pressure sores on those who were confined to a bed. The same pressure-relieving and comforting qualities are what has made gel foams an increasingly popular option for foam producers.

Visco-elastic technology has now been around for many years and Cannon Viking has now supplied over 75 customers around the world with equipment for the production of visco-elastic and memory foams, including the pioneers of this increasingly popular type of foam. Cannon Viking can not only offer equipment for the production of gel foams but they are able to do this on both a continuous basis using the Maxfoam family of machines or alternatively for smaller orders and to increase flexibility of production, using the Blockmatic discontinuous machine which is able to produce visco and gel foam blocks on a block by block basis.

The advent of gel foams has been due to the demand from certain customers who have commented that visco-elastic foams are incredibly comfortable to sleep on but their main drawback is that visco proves very difficult to dissipate heat and the customer often finds themselves becoming too hot on the mattress; especially in warmer climates and during the hottest months of the year. This is due to the normally higher densities of memory foam that mean that it often traps body heat and also retains it for long periods which can often interrupt or disturb sleep.

Visco-elastic technology has now been around for many years and Cannon Viking has now supplied over 75 customers around the world with equipment for the production of visco-elastic and memory foams, including the pioneers of this increasingly popular type of foam. Cannon Viking can not only offer equipment for the production of gel foams but they are able to do this on both a continuous basis using the Maxfoam family of machines or alternatively for smaller orders and to increase flexibility of production, using the Blockmatic discontinuous machine which is able to produce visco and gel foam blocks on a block by block basis.

The advent of gel foams has been due to the demand from certain customers who have commented that visco-elastic foams are incredibly comfortable to sleep on but their main drawback is that visco proves very difficult to dissipate heat and the customer often finds themselves becoming too hot on the mattress; especially in warmer climates and during the hottest months of the year. This is due to the normally higher densities of memory foam that mean that it often traps body heat and also retains it for long periods which can often interrupt or disturb sleep.

Refresh the memory!

Gel foams have been introduced to reverse this trend and their unique properties allow for cooler sleep and a much faster rate of dissipation of heat by the gel. In addition, gel foams also offer improved weight distribution as well as reduced transfer of movement on the mattress and superior support.

There are two methods for production of gel foams at the present time, both claiming to offer the best solution for provision of cooling properties required in gel-foam mattresses. Cannon Viking is currently working with a major European mattress producer to develop a bespoke blending and metering system for the provision of gel foams.

Gel as a filler
They produce their gel foams using a gel bead which is handled like a filler and blended with polyol before being used to produce the gel foam. Obviously due to the size of the gel bead particles, special metering and handling is required for this process and this is something that Cannon Viking already has extensive experience of dealing with. With this method of production, the gel is locked into the actual structure of the foam so there is no danger of the gel escaping, plus through efficient mixing and blending, the gel is evenly distributed within the foam, ensuring even and consistent properties to the finished product.

Gel as a layer
Alternatively, some foamers prefer to actually add in an additional gel layer onto the top of the visco-elastic foam. This was initially seen as a very costly way of producing gel foams but more and more producers are changing to this method as costs come down due to improvements in processing. The finished product is effectively another layer on top of the visco-elastic which gives optimum distribution of the gel and therefore has an even greater cooling effect than the traditional method, where it is pre-blended with the polyol just like a filler.

Whatever your requirements for visco-elastic, filled or gel foams, Cannon Viking can help and advice on the correct equipment for your needs either as part of a new machinery package or as an upgrade to your existing equipment.
CANNON VIKING IS A COMPANY THAT PRIDES ITSELF ON HELPING BUSINESSES DEVELOP AND GROW INTO MUCH LARGER ORGANISATIONS THROUGH USING ITS EQUIPMENT. WHEN CUSTOMERS PURCHASE MACHINERY FROM CANNON VIKING, THEY ARE NOT JUST BUYING A FOAM PRODUCTION MACHINE BUT ALSO ABLE TO TAKE FULL ADVANTAGE OF OVER 50 YEARS EXPERIENCE IN THE PRODUCTION, HANDLING AND PROCESSING OF POLYURETHANE BLOCKS NOT ONLY FOR THE FURNITURE AND MATTRESS INDUSTRIES BUT INCREASINGLY FOR AUTOMOTIVE, HEALTHCARE AND EVEN CLOTHING APPLICATIONS.

An integral part of Cannon Viking’s success over the years is the technical and practical support and advice given to new producers, especially in the layout of their factories, such as determining optimum production flow from arrival of the chemicals in the factory to the departure of the finished product or foam blocks to the end user. In addition, Cannon Viking also offers advice on the correct layout of any brand of foam production machinery but additional cutting equipment as well as tanks for chemical storage and correct conditioning of chemicals and temperature control.

In the increasingly competitive European market, one customer who has quickly grown from small beginnings is Pureko, based near Katowice in the south of Poland. Pureko have been working with Cannon Viking since 2009 when they purchased their first Maxfoam Omega 600 machine. Since their first venture into the foam production business Pureko has steadily grown and so has their production needs: due to the modular design of this equipment, the Maxfoam has been upgraded for the production of speciality foams.

Now, 5 years after the start, Pureko have ordered their second Maxfoam Omega 600 plant. Pureko has found a comfortable position in the competitive Polish market, producing high quality foams from 17 to 50 kg/m³ density and are now a major supplier to the booming Polish furniture industry. By locating their factory in the Special Economic Zone near Katowice, Pureko have been able to take advantage of favourable economic conditions as well as providing much needed employment to the local economy in this part of Silesia. With the order of their second Maxfoam Omega 600, Pureko will be able to further expand their present annual production output of 6,000 tonnes. Their new machine has many features not found on their first one, which once again illustrates just how far the company have come technically in such a short space of time. Their new equipment comes complete with High Pressure dosing and mixing, for the provision of Standard, HR and Visco-elastic foams as well as conveyorised sidewalls that, by reducing friction between the sidewalls and the side of the block, improve the overall structure of the block, the yield of the process and reduce waste with flat top equipment for optimum block shape. The addition of conveyorised sidewalls can be implemented on any existing Maxfoam machine: with the use of polyethylene film on the sides of the block, foam producers consistently see a chemical saving as well as a thinner and much reduced side skin than when using conventional papers on traditional static sidewalls.

Pureko, with the help and support of Cannon Viking, have grown quickly from a new foam producer to one of the most successful producers in Poland, consistently offering a high quality product to the Polish market. Cannon Viking is confident that their success will be boosted to the next level when their new High Pressure Maxfoam starts production at the beginning of 2016.
Cannon Deutschland: Ready to Grow!

Albrecht Manderscheid, Managing Director of Cannon Deutschland, illustrates the current activities of his local Cannon unit.

Cannon News: Cannon Deutschland is now living in their second century-quarter. Can you make a short résumé of its organisation, its position on the market, its presence in the German-speaking European countries?

Albrecht Manderscheid: Cannon Deutschland was founded in 1983 as the Cannon location to follow the German-speaking Polyurethane market in Europe. We are now more than 30 years successfully acting with our wide-ranging product portfolio in the various applications and this is all the more remarkable as we are in the “homeland” of our main German competitors. We all know that the Polyurethane market in Europe is mainly driven by Germany and it has been therefore a wise decision of Cannon as one of the leading PU processing machinery manufacturer to be present there with a strong unit focussed and dedicated to the Polyurethane activities. Our today’s organisation is driven by a strong emphasis on competent and focussed sales support as well as on a very strong back-up of the after sales service activities. Thirteen of our twenty two people are working in the after sales service area, so we can grant a full package of backup services such as installation and commissioning, maintenance and training, repair and modification of parts and machines to our customers. Besides this, we have a significant spare parts stock in our premises in Hanau to quickly serve and answer to the needs of our customers.

A full repair service for our mixing heads, pumps and other parts is also followed by the specialists in the after sales service. This includes also the refurbishment of second hand machines and extensions of existing production facilities. So far, we have sold more than 1,000 machines to more than 300 customers in our lifetime.

They are based in Germany, Austria, Switzerland, Czech Republic. A couple of thousand mixing heads has been distributed in our market sector. Besides the single machines we have installed a significant number of turnkey equipment plants for various applications.

CN: Which are your most significant markets?
AM: Our customers are as widespread as our product portfolio is; the main industries we supply our Cannon products to are mostly the automotive sector for specialised moulding plants, such as those for steering wheels, dashboards, engine covers, underbelly pans, wheel arches, grommets, structural and decorative composite parts, LWRT (Light Weight Reinforced Thermoplastics), car seats etc. We supplied, in the past and also last year, huge plants for innovative thermofomed fuel tanks. Next I would rank the industry of panel production.

For the discontinuous or continuous production methods, which is depending on the individual production needs, Cannon has the complete machinery package available. In the last 15 years we built up a very strong position in this market sector, which is also based on our long and deep knowledge and experience in panel production technology. There has been a lot of very important and significant plants, being installed into our market in the past years. To rank them would also go beyond this frame.

CN: In such a globalised World how do you follow your customers when they decide to invest far away from their home turf?
AM: We have adapted our organisation to the “World-on-the-move” mentality! We are much involved in our customer’s transplant activities; they define their needs in Germany, we build their equipment in Italy and – always in cooperation with our local Cannon colleagues – we install it wherever our clients need to operate.

The networked organisation of Cannon is ideal for this sort of things, it’s a Win-Win operation: everybody gains experience, the client is satisfied, we keep good relationship with the headquarters in Germany and our local colleagues follow the day-by-day service and spare parts activity with the factories. Being both companies assets in the same wallet, we find very little reasons to fight for the profits deriving from these international jobs! We have just done it in Rumania, in South Africa, in Hungary, in the Czech Republic and in Mexico for an important cavity filling plant for an automotive assembly line.

CN: How do you rate the growth of your markets in the next 3-5 years, with a consequence on CD performances?
AM: I’m confident in a continuing growth for the German-speaking markets that we follow. Innovative solutions are developed every day in any of the fields of activity covered by the Cannon portfolio of technologies, and new clients appear every day looking for solutions. We have not yet approached the non-plastic applications of Cannon simply because the competition in the field of Energy and Water Treatment is really fierce in Germany, but we are getting ready to approach this market with specialty solutions for niche markets, those where we have been accustomed to battle in for more than 30 years now!
Cannon President Awarded by FSK, German Foamers Association

The Award Ceremony of FSK’s International Polyurethane Congress 2015: left to right, Jens-Jürgen Haertel, Vice-President of FSK, Marco Volpato, President of the Cannon Group, Albrecht Manderscheid, President of FSK.

The FSK (Fachverband Schaumstoffe und Polyurethane e.V. – The German Industrial Association of Polymeric Foams Producers) has awarded Dr. Marco Volpato, President of the Cannon Group, with the Gold Medal of Honour for his merits gained in over 40 years of business activity in the field of Polyurethane and Resin Foams Technology.

The prestigious award was delivered during the annual International Polyurethanes Congress, which was held in Bonn on September 16, 2015, in the former West Germany Parliament building. Jens-Jürgen Haertel, Vice-president of FSK, summarised in the official “laudatio” the main steps of Marco Volpato’s 45 years-long career in the Polyurethane industry, reminding that he has contributed to the development and international spread of the Polyurethane’s technology by introducing – through the Cannon Group – innovative solutions for the production of rigid and flexible foams used in automotive, thermal insulation, refrigerators and furniture industry. With an academic background of Applied Mathematics and a professional experience in the field of software for mainframe computers and applications development at Honeywell, Volpato, after the death of his father Leonardo (founder of the Cannon Group) had to replace him to ensure the family continuity at the direction of the Company. Under his strategic direction, concentrated for many years on the construction of an international network of local Cannon offices, the Group could win many years ago, and still maintains, the world leadership in the field of Polyurethane dosing machines.

He also managed the diversification strategy that introduced Cannon in the field of other plastics technologies and in the Energy and Environmental protection business, widening the range of innovative solutions distributed by the Cannon Group in the World.

“After a whole life dedicated to PUR, receiving such a prestigious award touches me and honours the Group that I represent. To enhance this emotion is the fact that the award is delivered in the former house of the Parliament of Germany, an historical site in my youth’s memory, very close the industrial area where Polyurethanes were born just before WW2 and industrially developed immediately after,” commented Marco Volpato after the prize delivery, and concluded “Germany is still a driving country for the PUR market, rich of major clients and of innovative applications: the fact that a German industrial association awards an Italian entrepreneur is a small, significant gear added to the complex engine of good actions that can contribute to perfect the difficult process of unification of Europe. I hope that many more years like this can contribute to build a large European driving force for the growth of the whole World!”

Mara’s eGo wins!

During the 2015 Polyurethane Congress the FSK Innovation Awards 2015 were assigned. The First Prize went to Mara Freigang, a young Interior’s Architect of Mainz, who developed “eGo” an innovative, modular storage for shoes that can be hanged on a velvet-lined wall with Velcro supports.

The tri-lobed individual holders can store one pair of shoes (from training to gala model, one fits all sizes from 37 to 47) and can be easily repositioned at any angle. Moulded in integral Polyurethane foam by CSS Polyurethanotechnik GmbH of Coburg, the “eGo” is made with a Cannon A 40 dosing machine and an FPL head.

Says Jurgen Ritter, owner of CSS: “We only have Cannon machines in our factory since many years, and we are very proud of them.”

The First Prize went to Mara Freigang, a young Interior’s Architect of Mainz, who developed “eGo” an innovative, modular storage for shoes that can be hanged on a velvet-lined wall with Velcro supports.
Local Unit’s colleagues, to improve their language abroad. Some of them spend time working with our increasingly complex equipment in Italy and plants. Here they learn how to handle logistic and organizational skills.

This training period allows us to measure their how the machines are built and function.

Testing Department, where they learn hands-on for a malfunction and to solve it on the spot, with one of our specialists.

preparing together offers for the interventions and spares demanded by our clients in Italy and abroad. Two are fully committed with our mixing heads. Five are engineers located outside our headquarters, and five are minding the office front desk, including myself. This Service is also the reference point of all our Local Unit’s Technical Service teams, located in 20 countries around the World.

CN: What kind of activities do you perform?

II: In brief, we operate on six different fronts: Technical service, new machine and plant commissioning, hardware repair, internal support, training and after-market promotions.

The most demanding in terms of time is the first one, technical service: we usually sum up 1,500 service days per year, one quarter of them in Italy and the rest abroad. More than half of these interventions are performed for jobs needed on equipment for which the warranty period has expired. The second most important reason for travelling is, for our technicians, the installation and start-up of new machines and plants in area not covered by the Technical Service of our Local Units, or sometimes in cooperation with them; in these cases I’d say that the main reason for the trip is to train a colleague on a new piece of equipment.

CN: How do you form your Service people?

II: Our new colleagues, that must have a professional and scholastic background adapt to this demanding profession, before joining our Team are formed with an initial year of work in the Testing Department, where they learn hands-on how the machines are built and function.

This training period allows us to measure their problem-solving attitude and to define if they are able to switch easily from one technical subject to another. They must be able to identify the reason for a malfunction and to solve it on the spot, with mechanical, hydraulic, electrical, electronic and organisational skills.

When they have passed the formation period they join our Team, usually flanking for another year a senior colleague in the start-up of new machines and plants. Here they learn how to handle logistic and application-related problems.

Then they start working on their own, servicing increasingly complex equipment in Italy and abroad. Some of them spend time working with our Local Unit’s colleagues, to improve their language skills and be ready to communicate with our customers in more languages. Unfortunately, most of the times the technical interfaces of our foreign clients are not very familiar with a second language, and a lot of time is spent in trying to understand each other on the simplest things!

CN: You mentioned the commissioning of new equipment: is this a standard procedure for all of it?

II: It depends: standard machines sent to countries where we do have a Local Unit are commissioned by our local colleagues. For special machines we can either have our colleagues coming to Italy for the testing phase, so they learn about the new hardware and can commission the equipment at the customer place on their own, or we send out one of our guys to flank them, so he can train both our people and the customer’s operator. This is the standard procedure for complete plants, anyway. The start-up activities take at least one quarter of our trips.

CN: You mentioned before your activity regarding the hardware repair: would you elaborate a bit more about it?

II: When we receive hardware requiring repair, our specialists evaluate the degree of damage and, when more favourable for the client’s budget and urgency, they suggest him alternatives to the repair: it could be the supply of a new or reconditioned part, or the replacement with a more modern alternative. When feasible and convenient, the part is repaired using internal resources – a standard option for the mixing heads – or one of the certified sub-suppliers specialised in stream distributors, valves, cylinders, etc. Our Local Units carry the same type of activity on most of our equipment, including the reconditioning of used machines and plants: this is always an interesting business, it allows our customers to save a considerable amount of money while using only original parts and certified manpower.

CN: How would you describe your internal activities?

II: In few words, it’s a matter of input and feedback. We cooperate with all the functions of the Company, from the R&D Lab to Sales, from Technical Office to Production.

Twice a month we hold meetings with our colleagues of the Engineering and of the Testing Departments, where we present and discuss our suggestions to improve product design and finishing procedures.

We suggest how to avoid the same problem to occur in future: due to everyone’s resilience towards other people’s opinions – a natural thing – it’s easier said than done, of course, but we keep trying hard!

We report in a central database all the malfunctions or “strange behaviours” that we experience, as well as the performances of all the new formulations that we find on the market; data are saved in a shared archive and are available for everyone involved in Engineering.

With our Sales and Spare Parts colleagues we cooperate on a daily basis preparing together offers for the interventions and spares demanded by each individual case, according to the diagnosis – remote or local – made by one of our specialists.
CN: How is the training activity organised?
II: Training classes are regularly held on mechanical and electrical maintenance, usage of machine, technology, troubleshooting. They can be customised for a client’s technical staff or organised for a number of our Local Unit’s colleagues. We hold them in class room or at the customer site, especially after having commissioned a new plant or machine.

We always use these occasions to share the know-how with our junior Sales and Engineering people, so that they can learn how the machines perform in real life! Just to give the most recent example, we held a major training in June this year, destined to 23 new technicians coming from 11 countries (Brazil, Mexico, India, USA, China, France, Germany, Romania, UK, Japan, Singapore) plus 12 Italians. We gave four days of general lessons for everyone – with arguments going from warranty rules, new mixing head’s functioning and maintenance procedures, modern electronics and PLCs programming, new blowing agents processing tips – as well as specific sessions for some colleagues expected to assist special plants delivered recently in Chile, Brazil and India.

It has been a very intense week, rich in technical contents and personal contacts, ending with a joint visit to Milano’s EXPO 2015 pavilions, where the Cannon Group shares some projects with ANIMA, the Italian Confederation of Mechanical Industry Associations.

CN: A common problem for all the organisations is the Know-how Transfer. How do you make sure that all the experience matured by your senior technicians does not disappear when they retire?
II: Some of the most experienced technicians keep a tight contact with us even after retiring: we retain them with a consultancy contract and they perform several crucial tasks. Among them, the field training of younger colleagues on complex plants or in remote areas. One of their main tasks is to transfer their know-how. Another important activity they perform is the promotion of refurbishing projects on old equipment. They analyse the status of a machine and suggest a number of improvements that can be economically applied to obtain a much higher performance. New electronic controls, different heads, temperature controls more adequate to the modern formulations... a number of activities that help the customer to improve the performances of their original equipment, without investing in a new one.
Safeman & Cannon partnering for the benefit of refugees

THE IKEA FOUNDATION IS DEVELOPING AND TESTING A BETTER HOME FOR REFUGEE FAMILIES, IN PARTNERSHIP WITH THE UN REFUGEE AGENCY (UNHCR) AND BETTER SHELTER.

CANNON PROVIDES THE SWEDISH THERMOFORMERS SAFEMAN THE INNOVATIVE EQUIPMENT REQUIRED TO PRODUCE THE PLASTIC MODULAR SHELTER.

Many of the textile or plastic shelters currently used in refugee camps often have a life span of as little as six months before the impact of sun, rain and wind calls for their replacement. Unfortunately, refugees can stay in camps for several years. Not only does this leave vulnerable families even more exposed to the challenges of life in a refugee camp, but it also presents a huge burden to the aid agencies and governments trying to create a more dignified life for the millions of people who have had to flee their own homes. Thanks to the IKEA Foundation’s focus on funding innovative projects and developing connections between its partners, that could be set to change.

Collaborating for the benefit of refugees

The IKEA Foundation provides to this project funding and management support, UNHCR brings the know-how and field experience, while Better Shelter – a social venture – develop the prototypes and specifications for houses that are put up in modules and can be delivered in flat packs, a well-known IKEA concept that simplifies transport.

A smart, portable shelter

The houses are designed to be easily set up and taken apart and are also easy to carry. A tubular steel structure, similar to that used for camping tents, supports modular panel elements for the roof and the walls: these panels, made by thermoforming rectangular sheets of expanded TPO (thermoplastic polyolefin), are characterised by an excellent resistance to UVs and rain. These lightweight panels are fixed one another through simple plastic buttons and, when installed, they guarantee a certain degree of thermal insulation, a complete tightness to light, wind and rain, while preserving “optically” the privacy of the family living in the shelter – a defect much criticised of the textile tents widely used as shelter until now.

Each house is fitted with a flexible type of solar power unit, which is sufficient to power one lamp, that comes with the house, and a USB port. The USB option may look odd, but it shows the high conceptual level behind the project: the refugees – right now, 3.5 million of them live in UN-provided tents! – not only demand comfort, security and dignity, but also need a way to communicate with the rest of the world, and their mobile phones, tablets and computers plug into the same four-pin ports that we all use.

The prototypes of the shelter have been tested in refugee camps in Ethiopia and Iraq and the families who live in the shelter have had a direct say in how the product is developed, contributing with their experience to this collaborative process.

The project, started in 2008, required a number of refinements prior to the definition of the ideal shelter. When the decision was made to use thermoformed plastic walls and roof, NORTEC-Cannon AS, the Cannon agency in Europe’s Northern countries, was consulted by the Swedish company Safeman for the supply of a proper industrial solution able to provide the high number of parts in a rational and fast way. Safeman manufactures everything from custom parts to high-volume units and assembled products for the industrial sector, offering to their customers a total concept, from initial idea to finished product. They design and manufacture products and details in materials such as plastic, textile, foil, leather and metal, and were involved since the beginning in the development of this innovative shelter.

Cannon Ergos was involved with this request and responded designing a complete production solution, while offering their laboratory facilities to supply the desired prototypes for the field tests. The suggested thermoforming solution aimed to produce a totally trim-less panel: no peripheral scrap is generated in this project, contributing to the economy and the environment friendliness of the process.

The new shelters for refugees are designed to last for several years, to replace the common textile tents that last no longer than six months. They have been delivered recently to Ethiopia, Greece, Iraq, Iraqi Kurdistan, Macedonia and Nepal to face the rising demand of temporary housing for refugees from war zones and for the victims of earthquakes.
A dedicated, environment-friend solution

The plant, supplied by Cannon Ergos in the first quarter of 2015, includes:
- two forming presses to shape five different types of panels served by
  four handling robots
- three presses to punch the holes for the connecting buttons
- five thermoforming moulds
- the heating stations for the plastic sheets
- the complete engineering of the plant
- two prototyping moulds and all the relevant production of prototypes

When fully operative, this plant will be able to produce panels for about 30,000 shelters/year.

“This is a clear example of how we use design and the design process to create benefits based on the user’s needs,” explains Anders Rexare Thulin, Chief Executive of Better Shelter “We create added value for every euro with houses that are cheap and durable.”

Cannon is proud of having contributed to the project: with the supply of a complete solution – from the technological concept to the production plant, including tooling and prototyping service – Cannon Ergos confirmed once more their mission of One-Stop-Shop supplier of complex moulding plants.

We thank IKEA Foundation (www.ikeafoundation.org) for parts of the article and for the shelters pictures!

Visit their website pages dedicated to this social project.

A major Tier One supplier to the automotive industry has commissioned to Cannon Ergos a large industrial Twin Sheet thermoformer for the manufacture of HDPE pallets.

These specially shaped supports, manufactured in 1,200 x 1,000 mm and 1,200 x 800 mm sizes, are used to precisely and safely hold large automotive components in their trip from the Tier One production plant to the OEM’s assembly line. Another version of pallet is designed to hold bulk quantities of smaller automotive components.

A major Chinese producer of domestic refrigerators is now producing the inner liner of its cabinets using a new in-line thermoformer, supplied by Cannon Ergos through the successful commercial effort of Cannon Far East.

The fully-electric multi-station machine features a pressure-operated forming station working at 2 bar, with a clamping force of 60 tons.
Fast Solutions for Instrument Panels

CANNON DEVELOPED AND IS DELIVERING A VERY FAST POLYMERISATION SOLUTION FOR THE MANUFACTURE OF POLYURETHANE-INSULATED AUTOMOTIVE INSTRUMENT PANELS. THE EQUIPMENT WILL PRODUCE SOFT-TOUCH DASHBOARDS FOR THE CHINA-MADE MODELS OF A MAJOR FRENCH CAR MAKER.

Also in the field of semi-rigid foams for automotive applications there is a trend towards fast Polyurethane formulations. Higher productivity and better foam’s performances are convincing the car part makers to utilise chemical formulations that can be demoulded in about one and a half minute or even less. This requires metering and mixing equipment able to dispense all the demanded chemicals in less than four seconds, as well as the availability of a polymerisation press capable of very fast movements. Since the dashboard is one of the largest components of a vehicle, the mould carrier able to handle quickly and very precisely such a large mould is not a trivial piece of equipment.

A major Tier One supplier of automotive parts delivers the vehicle’s interior parts to the Chinese factory of a major French car maker.

Their soft-touch dashboard is produced injecting in 3.5 seconds 1.5 kg of energy-managing foam on the back of a thermoformed thermoplastic skin. The demoulding time specified by the customer is only 100 seconds. Cannon Far East, facing the fierce competition of local and international manufacturers, was able to secure the order for the complete foaming and polymerisation equipment required by the project.

A Cannon “A 40 Compact” metering unit, able to feed up to three FPL 14 mixing heads, was supplied for the wet part of this project. The fully-electric polymerisation press was manufactured by Shinnon – the Chinese Cannon factory located in Zhongshan, Guandong province – under the technical supervision of Cannon Ergos. Featuring platens of 2,000 by 1,100 mm and a maximum daylight of 1,100 mm, this press is designed to close the large dashboard mould in only 3 seconds.

The ergonomic press features the individual tilting movements of both platens to allow for a thorough cleaning of the remotest corners of the mould, and a pneumatic parallel stroke of the lower platen. All these features are built into a very compact design – the closed press is only 2.64 m high – for maximum portability of the equipment. All electric and electronic controls are mounted on board and the press can be displaced in minutes using a simple forklift.
ERGOS IS THE ENGINEERING COMPANY OF THE CANNON GROUP. RECENTLY THEY HAVE DELIVERED A NUMBER OF LARGE SYSTEMS FOR COMPOSITE MANUFACTURING TO CUSTOMERS IN THE AUTOMOTIVE AND TRANSPORTATION INDUSTRIES AS WELL AS EQUIPMENT FOR OTHER INTERESTING APPLICATIONS. ERGOS GENERAL MANAGER, ALBERTO ZARANTONELLO, BRINGS US UP TO DATE ON THE LATEST NEWS ABOUT HIS COMPANY.

Cannon News: What does 2015 look like for Cannon ERGOS, Mr Zarantonello?

Alberto Zarantonello: A very busy year, to say the least. Our two-year-old, 3,000 sqm-large assembly plant has been churning out some of the largest-ever pieces of equipment made by our company and will continue to do so in the future. We have brought activities from various Cannon companies together under the same roof and can now watch individual machines and entire lines take shape and be tested in the same place and at the same time. Our guests seem to find the experience inspirational when they come to visit our premises.

CN: Any recent projects that are worth mentioning?

AZ: There are plenty, I should say. We have just shipped a complete line for large composite elements to a major multinational supplier of automotive parts in Germany, who works for a leading car manufacturer. The line can use different technologies: HP RTM, Gap Injection and SMC. It consists of two dedicated machines: a carbon fibre preformer and a clamping press, both of which are huge. The automatic preformer can work from either rolls to make conventional parts or pre-assembled sandwiches made from different fibres pre-cut in irregular shapes. It can handle preforms up to 2.5 by 2.5 metres, with a clamping force of 3,000 kN. Acting like a giant iron to the fibres, an energy-efficient heating station brings the fibre temperature up to 200-220°C in less than a minute optimising cycle time.

Two sets of intelligent grippers pick up the hot sandwich and transfer it to the forming station where an in-mould, integrated hold-slip frame ensures optimum draping control of the carbon fibre layers when pressed in the forming mould. In less than a minute a complex preform is made, which is then extracted by a robot as the next hot sandwich comes in from the heating station. After preforming, the process continues in the huge polymerisation press. It is a short-stroke clamp with active control of parallelism and is designed to work with HP RTM, Gap Injection and SMC. This offers excellent production flexibility and return on the investment. The size of the platen can be up to is 4.5 by 4 metres and more than one large part can fit on it with two moulds mounted side by side. With a clamping force of 36,000 kN, this press combines very fast opening and closing phases, executed at speeds up to 400 mm/sec, with a very accurate final clamping phase, which can be set from 1 to 20 mm/sec.
A special design allows us to use a semi-closed mould when resin is injected and then shut it completely to squeeze out all the air trapped in the bulky fibrous preform. This design makes it possible to have some vacuum in the mould even when the press is not completely shut off. Therefore, the benefits of vacuum moulding and those of squeeze moulding are offered.

CN: What do you consider to be the advantages of this solution?
AZ: When comparing ERGOS presses to conventional presses for composites, customers are happy to find that our units have a 30% less tall 
which helps streamline the layout of their factories, and provide for a 20% reduction in energy consumption. Faster cycle time is also to be mentioned. The design of our press is such that it can work on a limited amount of hydraulic oil leading to shorter pressure build-up time. Customers also appreciate the dimensional consistency between the parts, which is hardly negligible when dealing with bulky, irregular preforms that can interfere with the closing of the press. Active control of parallelism is of great help.

CN: Are you planning to build more of these large lines in the near future or is this a solution for a niche market?
AZ: A timely question indeed! We are supplying a similar line to a major Italian manufacturer of composites for the automotive industry. We will release more details during the year. Another large order is being prepared as we speak. We are to provide a complete line, consisting of a preformer and a press, to a US customer who will use it to make an innovative product for the transportation industry. I cannot say more for the moment, but when the line becomes operational, it will hit the headlines and not only in plastics trade publications!

I should mention that in 2014 we delivered another major preformer to a German customer, who makes parts for the latest models of a leading German car manufacturer. The unit has a preforming capacity of 3 by 3 meters and a vertical stroke of up to 2 meters! The composites industry is a healthy one and the solutions for its industrialisation are available. It has been hard work, but we have identified what the industry needs to comply with the demanding cycle times of auto and auto parts makers. And the results are showing!

CN: Cannon ERGOS does not just deal in composites and automotive parts. How are your other markets doing?
AZ: They reflect the general economic trend with some areas doing better than others. We see good business coming from the thermoforming market with some very special solutions being supplied to customers in Europe, Japan and Latin America.

In addition to production lines for automotive car parts, we have worked on a very special application of our technology – the creation of refugee shelters – a project sponsored by the IKEA Foundation in Sweden.

Another interesting application that we have worked on is that of “front entry doors” for residential homes. We have recently supplied Rodenberg in Germany with a dedicated thermoformer that makes inner and outer shells for a variety of entry doors. After the flood of orders we received in the last few years, domestic refrigerators seem to have slowed down a little. We got a nice contract in China for an in-line thermoformer for refrigerator cabinets coupled with a very large number of dosing units and metering devices for blowing agent blends.

Far from the vagaries of consumers’ behaviour when purchasing fridges for their homes, commercial refrigerators have proved a very interesting sector. We have recently sold a complete line to an Austrian manufacturer for their production plant in Brazil. The RotoJig is an innovative solution for the manufacture of domestic refrigerators. We developed it a few years ago and have just sold two of them to customers in the Far East and in Mexico. The machine allows us to polymerise two refrigerator cabinets using a single foaming station. This solution saves room as well as part of the hardware usually required to build two jigs. The jigs are already fitted with all the accessories needed to apply vacuum to the mould so that refrigerator production too can benefit from the advantages of our V.A.L. technology.

CN: EXPO 2015 is taking place just a few kilometres off your factory. Have you done any special activities for the six months of the exhibition?
AZ: Of course, we have. Cannon has run an intense programme of visits to their factories located in the outskirts of Milan, and ERGOS has played a big role in it. We have had general Open Days during summer, when major pieces of equipment were in an advanced stage of testing at our facility. We organised visits to our premises by individual companies and treated our customers with a special programme. After meeting with us, they went on a guided tour of the Italian Pavilion at Milan’s EXPO 2015.

It has been an intense year, considering the tight delivery schedule we have to meet for various projects! But, as usual, we are making it!
PETROGAS and ARTES join hands in Turkmenistan

THE UK’S PETROGAS IS ABOUT TO CARRY OUT A LARGE-SCALE MODERNIZATION PROJECT AT THE TURKMENBASHI COMPLEX OF OIL REFINERIES (TCOR) IN TURKMENISTAN. PETROGAS HAS PARTNERED WITH ARTES INGEGNERIA FOR THE IMPLEMENTATION OF A LARGE-SCALE TECHNOLOGICALLY- TRENDS-SETTING EFFLUENT TREATMENT PLANT.

Turkmenistan, a country very few people can easily locate on a map, is now on the cover pages of business magazines. The Central Asian country sits on some of the world’s largest natural gas and oil reserves. Turkmenistan, with proven natural gas reserves of approximately 265 trillion cubic feet (Tcf), is the sixth largest natural gas reserve holder in the world and was among the top 15 dry natural gas producers in 2012. However, a lack of adequate infrastructure, along with geographical distance from buyers and other factors, have hampered the country’s efforts to export hydrocarbons in the past. The country now aims to triple its crude-processing capacity by 2030. Turkmen government officials have said the country hopes to boost its oil-processing capacity to 300,000 bpd (barrels per day) in 2015, rising later to 400,000 bpd in 2020, 440,000 bpd in 2025 and 600,000 bpd in 2030. This will be accomplished by easing capacity at its existing oil refineries and building three new refineries by 2030.

The Turkmenbashi refinery, located on the Krasnovodsk Gulf of the Caspian Sea, is one of Turkmenistan’s two oil-processing facilities. Capable of handling around 120,000 bpd, it accounts for more than half of the country’s total throughput capacity of 200,000-220,000 bpd. Turkmen authorities launched the latest round of modernization work at the Turkmenbashi refinery in May 2012. In November 2012, Turkmenistan announced that South Korea’s Hyundai Engineering had been chosen to implement a US$534 million modernization project at the refinery.

A Very Qualified EPC Contractor

In late 2013 London-listed PetroGas LLP has been selected by Turkmenbashi Complex of Oil Refineries as the EPC contractor for a vast rehabilitation program including the reconstruction of water supply, petrochemical plants and the construction of a modern waste water treatment plant. Founded in 1998, PetroGas is specialised in the construction and rehabilitation of infrastructures in the oil and gas sector. In particular PetroGas implements projects including EPIC (engineering, procurement, installation and commissioning), construction of pipelines, onshore and offshore, compressing and pumping stations, oil and gas treatment plants, tank farms and offshore oil and gas structures. PetroGas is headquartered in London, UK with facilities in Ukraine, UAE, Russia, Turkmenistan.

For the waste water treatment plant PetroGas decided to partner with ARTES Ingegneria, a well-known name in the Oil & Gas sector. PetroGas, who are already very much accustomed to the ambient conditions in Turkmenistan, will take care of the land clearing, execution of civil works, mechanical installation, electrical and instrumental wiring and cabling, automation of the entire system as well as the site services including commissioning and start-up.

ARTES will focus on the technological part while providing the overall process design and the detailed engineering of the skid-mounted units: Pre-fabrication of the critical equipment will be done in ARTES’ own factory in Salerno, Italy.

One of the World’s Largest WWT Plants

The effluent treatment plant has an overall capacity in excess of 1,000 m³/h, among the largest industrial waste water treatment (WWT) in the world. It is arranged on four WWT trains, a mobile sludge dehydration unit and a sanitary water treatment system. But capacity is not the sole challenge. In order to meet extremely stringent limitations on the concentration of various chemicals species in the treated water outlet, each train has been designed to incorporate an oil separation section, a biological oxidation and a tertiary treatment. Oil separation is featuring Coalescing Plates Interceptors (CPI) and dissolved air flotation.

The biological section will feature the “state-of-the-art” Membrane Bio-Reactor (MBR) technology that guarantees an extremely efficient oxidation of the organic substrate with a quantitative separation of all suspended solids, bacteria and viruses as only an ultrafiltration membrane can do.

The tertiary treatment, which is in most cases useless downstream an MBR unit since all solids and bacteria are removed there, is targeted to the selective removal of those organic molecules that are difficult to be biologically oxidized. An advanced oxidation process with Hydrogen Peroxide injection, a specifically developed catalyst and an adsorption unit is therefore implemented to get rid of residual aromatics and toxic compounds down to ppb (parts-per-billion) levels.
Shinnon Grows!

THE CHINESE FACTORY OF THE CANNON GROUP GROWS STEADILY, THANKS TO A BALANCED COMBINATION OF SKILLS AND A GOOD CooperATION WITH ITS SISTER COMPANIES.

WE INTERVIEW THE NEW DEPUTY GENERAL MANAGER, SIMON WONG CHEUK YIN, TO KNOW MORE ABOUT THE REASONS FOR THIS CONTINUOUS GROWTH.

Cannon News: You are quite new at Shinnon, Mr. Wong. Can you tell us something about yourself?
Simon Wong: I was born in 1959 in Hong Kong, where I lived most of my life, and I had my Degree in Electrical Engineering in Ottawa, Canada. Back home, I worked many years in Hong Kong and in China in the field of power plants, setting up and managing joint-venture businesses for major international Companies like ABB, AEA Technologies and others. Then I went to Sydney, Australia, to start a consultancy activity for the Chinese market. Back to Hong Kong, after a few years I was head-hunted for a Management position in Shinnon, which I took with enthusiasm: I was thrilled by the opportunity to use my technical background and my Chinese experience in a manufacturing Company belonging to a leading international Group. And here I am since March 2015!

CN: Could you summarise Shinnon's current activities?
SW: Shinnon, whose official Chinese name sounds as Zhongshan Shinnon Machinery Co., Ltd., was established in November 2004. It celebrated last year the tenth anniversary in its third location: the continuous growth of business and staffed the Company to move two times in new, larger premises, still in Huangpu near Zhongshan, in the Pearl River Delta region. Our 80 people staff manufactures, sells, installs and provides technical service for Polyurethane dosing equipment and all the “dry” side that goes with it: presses, mould carriers, carousels, round tables, storage and pre-blending systems, piping and metal structures. We work in tight cooperation with all Cannon’s Manufacturing Centres for the product’s engineering and construction matters, and with the Group’s Local Units to assist them whenever they need our assistance for the equipment destined to the Chinese branches of their international clients. I found here a competent staff, whose numerous skills are balanced well between technical office, manufacturing, sales, service and finance. We dedicate some of our sales specialists to the most important markets such as automotive and refrigerators - and we flank them with a strong spare parts and service group.

CN: Do you export your products?
SW: Shinnon main market is the domestic one. Our dosing units are destined to the Chinese high- and medium-level manufacturers of Polyurethane parts. When Cannon requires, we supply the “dry” parts of a foaming plant also to other countries, but always within the frame of a larger contract taken by a foreign Cannon Unit. We did it in Japan, USA, Germany, Italy and Spain, as well as in developing countries like India, Pakistan, Indonesia, Malaysia, Thailand, Vietnam and Bangladesh. We also supply qualified manpower for the installation of these plants, as it happened recently in Mexico for a large car seat factory.

CN: How is your level of integration within the Cannon Group?
SW: Very good, I’d say. We depend on Cannon Far East organisational structure: from Singapore we get the strategic lines of conduct, and we develop them in strict cooperation with the three CFE sales offices based in Shanghai, Beijing and Guangzhou. Since the beginning we enjoyed the technical support of Cannon Afros in Italy, who sent here immediately our current Operation Manager. We have received the widest cooperation from Cannon Ergos for complete lines, and we are now their Far East arm. We are starting to work with BONO Energia and ARTES Ingegneria in the fields of Energy production and Water Treatment, two markets extremely interesting in China, but only if a local manufacturing facility is available. Our people attend all the major Group meetings for technical, marketing and financial activities. We could not feel better integrated than we currently are!

CN: Which are the most interesting markets for your products?
SW: We dedicate a lot of efforts to the Chinese automotive market, where we obtain significant results. We count among our clients the largest international car makers. They have tested the quality of our products for many years in Europe and America, and when they move one of their manufacturing sites over here they know that they can rely on Cannon solutions and service. The domestic automotive industry is increasingly rising their quality level, and here also we are making progress. The refrigerator market requires some more efforts: local competitor took a lot of ideas from Cannon and from other Western manufacturers, and offer a cheaper product that suits the tight economy-driven budgets of most of the fridge makers. The larger Groups can afford our slightly higher prices, but it’s a tough market. We are as usual tackling the insulation panels and the refer containers industry – China has the World’s largest – with both continuous and discontinuous foaming solutions, in tight cooperation with Cannon Ergos for the dry part.

CN: Which is your personal and Shinnon’s target for the future?
SW: I’d like to see Shinnon grow further in good health, able to service the needs of the Chinese market and those of the Cannon Group internationally. The continuing support we have had from the rest of the Cannon Group is of paramount importance for us to attain this target and I expect to increase it by reinforcing the personal contacts with my colleagues around the world. As a team, we can win!
The Russian history of the company started in the 1990’s when a pioneering work was started by Cannon Afros’ Stefano Risso, then by Celeste Salvadori with the opening of a Cannon representative office in Moscow in 1997 where only one person – Alexander Babkov – worked. The project matured in 2005 when Cannon Eurasia was founded as a wholly licensed Russian Company. The first steps of the Company were at that time assisted by Heinz Meloth, and till now by Marco de’ Guidi, as Cannon International Managers. Today 18 persons, lead by Andrea Castellan – an Italian manager with a long experience of the Russian market, work at Cannon Eurasia. A sales team of six people sells nearly the whole catalogue of Cannon products: Afros dispensing machinery, Ergos complete lines, presses, and thermoforming equipment, Viking lines for slabstock foam production.

First among the Group’s Local Units, Cannon Eurasia started in 2011 the distribution of BONO industrial boilers. The ground has been prepared to start now the distribution of ARTES Ingeneria line of Water Treatment Systems, very appealing for such a vast nation trying to preserve their rich patrimony of water. A part of the equipment is available in the Moscow storage, already cleared from Custom duties and sold in Rubles, avoiding to the clients the onerous import operations and charges.

Six experienced specialists provide technical service for the equipment installed in Russia and CIS, guaranteeing a prompt response to customers spread over a 12-time-zone immense area.

Says Andrea Castellan, General Manager of Cannon Eurasia: “A lot of time has passed already, even if 10 years might seem short! We have grown significantly in presence on the local market, in technical know-how, in staff, in service, in experience and... in profits! Our most important asset is our people, a real good team of specialists able to widen their perspectives and accept new challenges, such as the new lines of Cannon products that we are successfully distributing and servicing now. It’s now time to refocus, seen the current Russian situation, and to dedicate all our resources where the market is calling for innovative and productive solutions at a reasonable cost. We see, around Russia, a number of rising stars: Kazakhstan, Azerbaijan, Uzbekistan... countries with plentiful natural resources that are claiming their share of wealth and are getting known worldwide thanks to their entrepreneurs. We are here, pretty close to them and speaking a common language, ready to help them find the technological solutions they need. This is really a huge market, we’ll find the way to overcome the current tight situation of the Russian economy!”

Gladly participating to the anniversary celebrations in Moscow, Marco Volpato, Cannon Group’s President, commented: “Congratulations to Cannon Eurasia! We have built in ten years of hard work a beautiful team, which has reached significant economic results, an impressive market share and a sincere recognition from our customers. This team has been able, recently, to look beyond their horizon and to accept new challenges in the field of Thermal Energy – and they have got good results also from this market!”

And Marco de’ Guidi Cannon Group’s Sales Manager and Supervisor of all Local Units, added: “This team is now a bit frustrated by the current Russian situation which has frozen most of the investments but, while waiting for a better turn in economics, it is training harder than ever, playing abroad and on different playgrounds. I am confident, for instance, that the field of industrial boilers, especially for agricultural and food sectors, will give them satisfactions and motivation to continue. And that is one of our targets, to continue to be a Winning Team in Russia!”
Lot of R&D for Rigid Foams

Numerous R&D Projects Related to the Polyurethane Rigid Foams Business are Currently Keeping Very Busy the Cannon Specialists. We Hear More about Them from Maurizio Corti, Director of Cannon Afros R&D Department.

Cannon News: R&D activities seem to be quite hectic at Cannon for refrigerators and panels. Can you disclose something to our readers?

Maurizio Corti: We usually try to keep our mouth zipped about R&D activities, but – when Patents have been applied for – some details become quite public and can/bes released. We are currently working on several projects for both refrigerators and insulated panels production.

CN: OK, refrigerators first, then! What’s new?
MC: After having released and commercialised the Rotolig, a double-jig foaming fixture for refrigerator cabinets that is very suitable for the modern fast formulations and for the use of Vacuum Assisted Injection, we concentrated on the door foaming technology. Our attention was drawn by the requests of productivity and flexibility.

We just applied for some patents regarding a new production solution based on free-riding moulds running in a track where they are kept closed, during the polymerisation period, by a continuous series of steel rolls mounted on rails. The line is conceived with a number of service stations, an injection point and a polymerisation area. The sequence of operations is extremely sequenced, so that each station of this line is dedicated to only one simple action that can be executed in very few seconds. The two half of the moulds are serviced manually by two or three operators reinserting the mould, avoiding any risk of air rushed out through the narrow top side of the mould, which produces more cells within the foam prior to the compression phase in the foam prior to the compression phase.

The locked mould, running on a series of mechanically-driven rolls, enters in a sort of tunnel where it is kept closed under the pressure of steel rolls mounted above and below the track. The mould stays here for the whole time of foam curing and leaves the pressurised area immediately before the mould opening station. Here the upper mould half keeps moving on a straight path, while the lower half is brought in a robotised unloading station. The cured doors are unloaded, then the mould is transferred through a cleaning station and then it’s served again by the operators.

The line can be conceived for a given polymerisation time and, in future, adapted to a faster one simply removing a few polymerisation stations. mould change can be executed during the cycle time, in a specific station, without stopping or delaying the production. Fast, flexible, simple… we expect a good response from the market.

CN: We know that there is something else new for the refrigerator door foaming! Can you disclose it?
MC: Sure, it’s another innovative foaming system designed for customers requiring a compact industrial solution. It’s derived from the famous Drum, that Cannon invented in the early 1980’s and has been manufactured in thousands of units... also by several competitors, when its patent expired!

The Drum is a rotating polymerisation machine that features a structure composed by several sides, from three to twelve, holding the moulds. These moulds have always been filled with foam when they are parallel to the floor, fixed horizontally on the sides of the structure. We have now developed another method for foaming the doors, the VertiDrum, which works vertically.

We foam two sets of doors held vertically in a closed structure, with a thin metal sheet between the two sets. The foam rises vertically in the door casing, and the pressure of the expanding foam is contrasted on the external side by the structure of the mould and on the internal one by one simple metal separator between the two sets: the foams within the two facing doors expand at the same time and the pressure exerted by each of them on the separator is contrasted by that of the opposite door.

The advantages are numerous:

• With only two operators and a conventional rigid formulation two complete sets of doors can be extracted every 60 seconds.
• This compact equipment has a footprint of 3 by 2 meters and full access on all sides.
• The foam rises vertically in the door cavity, with a positive effect on the thermal insulation: the elongated cell’s structure produces more cells within the thickness of the door than those obtained when foaming it horizontally, and placing more cells (thus more obstacles) in the direction of the heat transfer improved the Lambda value – the insulation capacity - of the door.
• All the air contained in the door cavity is rushed out through the narrow top side of the mould, avoiding any risk of air entrapment on one of the two aesthetic sides. The same good quality is available on both side of the door regardless of the way it is loaded into the mould. No more issues about plastic liner on top or bottom side, we talk now about left and right side.
• The distribution of densities within the foam is optimal: during testing, even with moulds kept at room temperature, we obtained a maximum difference of 0.5 kg/m² between the heaviest and the lightest sample.

The VertiDrum is a real breakthrough in the industry especially when the reactivity of the foam is high and when the door shall contain additional inserts, moreover can also be used for any kind of thin, rectangular insulating panel.

CN: Then we can talk about the panels, now: what's the novelty?

MC: We are approaching the production of the paper-paper panels with a new philosophy. We thought about the major problem of this technology, the laydown: however you take it, the distribution of foam on the lower paper sheet is always geometrically irregular or it requires complex mechanical solutions to guarantee an even lay-down of the liquid formulation.

We based our two new solutions on high-pressure dosing and mixing equipment, that provides optimum foam quality even at high output values. With the first solution the laminar flow of liquid formulation is laid between the two sheets of paper while both of them are held vertically, constrained by two large rolls whose tangential points are positioned at few millimetres one from the other.

This thin gap between the two rolls is filled by the liquid that immediately distributes itself on the whole width of the roll, which is as large as the final panel. While the two rolls rotate, the sandwich of paper-liquid PUR-paper follows the curve of one of them and it’s introduced in a conventional continuous laminator where it’s kept under pressure while the liquid reacts and expands. In the meantime the liquid has perfectly wetted the whole surface of both paper sheets, avoiding any air trap or problem deriving from a “running” foam. We can change the thickness of the panel on the flight, simply increasing the output of the high-pressure dosing unit adapting the set and the speed of the conveyor.

All the preliminary trials done in Cannon R&D laboratory have given extremely promising results, we are very satisfied.

We are discussing with a partner for the industrialisation of the equipment, and we’ll be glad to disclose more details with any panel manufacturer with serious intentions and ready to cooperate with us in this project.

For those customers still willing to adopt a classic foam lay-down method we have developed – and applied for the relevant patent – Pug Beak, a modular dispersing device able to deposit a thin layer of liquid with an homogeneous thickness across the whole width of the panel. Also this system is fed by high-pressure heads, with significant advantages in terms of elimination of cleaning solvents to flush the head and of working place’s cleanliness.

CN: Anything else that you can disclose?

MC: Enough for today! We’ll talk about our solutions for the elimination of liquid fire retardants in continuous foaming plants in the next Cannon News!
CLOSED FOR SOME TIME FOR A SUBSTANTIAL RESTORATION, THE CANNON – SANDRETTO PLASTICS COLLECTION RE-OPENED IN PONT CANAVESE, NEAR TURIN, ITALY ON JUNE 7, 2015. HUNDREDS OF ANTIQUE PLASTIC OBJECTS ARE AGAIN DISPLAYED IN SEVEN REFURBISHED ROOMS.

Cannon owns one of the World’s largest collections of antique plastic objects, hosted in an elegant 19th century villa in Pont Canavese, a half-hour drive from Turin, Italy. The town of Pont is located at the foot of the Alps and was once at the centre of an important network of roads that crossed the mountains – a place to trade and meet different cultures.

The villa was originally the guesthouse for the Sandretto factory. The building required significant renovation and this, of course, was incompatible with keeping the Cannon – Sandretto Plastics Museum open to visitors.

Now, after several years of intense refurbishing, the site has been reopened. It is now a non-profit cultural organisation known as the “Cannon – Sandretto Plastics Collection – Civilization of Plastics”. Seven rooms host one of the richest collections of objects made in plastic materials, ranging from the early Ebonite, Celluloid, Casein plastic, Urea-Formaldehyde and Bakelite to the most modern technopolymers.

New graphics, timelines and visual displays help the visitor familiarise with the history of polymers, the main types of plastics and their applications.

An opening ceremony has been held on Sunday, June 7, 2015. The Cannon Group management attended the event with their families, accompanying a number of guests that included the town government and population, members of the Italian plastics community, local and national press.

Marco Volpato, Cannon Group’s President, expressed its satisfaction for this long-expected occasion: “It has been a challenging task, but we finally made it: the public fruition of this Collection was a promise that we made to ourselves and to the plastics community when we acquired its property several years ago. We had to face a number of technical and bureaucratic obstacles, but at the end we are here to open it again.

A century of research, patents and inventions has generated a huge amount of products that have changed the way we live on this planet. These products are now back on display here. It’s a good day for us all at Cannon and for Pont!”

An agreement signed between Cannon and the town’s government ensures that a professional guide will be available to open the site to the visitors who booked their visit in advance.

To book a visit contact communication@cannon.com or info@comune.pontcanavese.to.it or call +39 0124 862511

Cannon – Sandretto Plastics Collection
Via Modesto Sandretto 16
(formerly Via Guglielmo Marconi, 30)
10085 Pont Canavese (TO) – Italy

Website: http://museum.cannon.com

October 2015 Special Openings:
Sunday 4 and 18 at 10 am, 15 pm, 16.30 pm
CLOSED FOR SOME TIME FOR A SUBSTANTIAL RESTORATION, THE CANNON – SANDRETTO PLASTICS COLLECTION RE-OPENED IN PONT CANAVESE, NEAR TURIN, ITALY ON JUNE 7 2015. HUNDREDS OF ANTIQUE PLASTIC OBJECTS ARE AGAIN DISPLAYED IN SEVEN REFURBISHED ROOMS.

Cannon owns one of the World's largest collections of antique plastic objects, hosted in an elegant 19 century villa in Pont Canavese, a half-hour drive from Turin, Italy. The town of Pont is located at the foot of the Alps and was once at the centre of an important network of roads that crossed the mountains – a place to trade and meet different cultures.

The villa was originally the guesthouse for the Sandretto factory. The building required significant renovation and this, of course, was incompatible with keeping the Cannon – Sandretto Plastics Museum open to visitors.

Now, after several years of intense refurbishing, the site has been reopened. It is now a non-profit cultural organisation known as the “Cannon – Sandretto Plastics Collection – Civilization of Plastics”. Seven rooms host one of the richest collections of objects made in plastic materials, ranging from the early Ebonite, Celluloid, Casein plastic, Urea-Formaldehyde and Bakelite to the most modern technopolymers.

New graphics, timelines and visual displays help the visitor familiarise with the history of polymers, the main types of plastics and their applications.

An opening ceremony has been held on Sunday, June 7, 2015. The Cannon Group management attended the event with their families, accompanying a number of guests that included the town government and population, members of the Italian plastics community, local and national press.

Marco Volpato, Cannon Group’s President, expressed its satisfaction for this long-expected occasion: “It has been a challenging task, but we finally made it: the public fruition of this Collection was a promise that we made to ourselves and to the plastics community when we acquired its property several years ago. We had to face a number of technical and bureaucratic obstacles, but at the end we are here to open it again. A century of research, patents and inventions has generated a huge amount of products that have changed the way we live on this planet. These products are now back on display here. It’s a good day for us all at Cannon and for Pont!”

An agreement signed between Cannon and the town’s government ensures that a professional guide will be available to open the site to the visitors who booked their visit in advance.

To book a visit contact communication@cannon.com or info@comune.pontcanavese.to.it Cannon – Sandretto Plastics Collection Via Modesto Sandretto 16 (formerly Via Guglielmo Marconi, 30) 10085 Pont Canavese (TO) – Italy Website: http://museum.cannon.com

STEAMED by BONO ENERGIA
Your Best Ingredient!

BONO ENERGIA for Food&Beverage Processing
Every successful recipe has a secret ingredient which amalgamates all the others and enhances the taste.

Since 1958 our industrial steam generators and thermal fluid heaters are the special ingredient which contributes to the excellence of food processing companies renowned in the world.

Taste Our Best:
- Safety
- Reliability
- Energy Efficiency
- Emission Reduction
- Technical Assistance Network

www.bono.it

Meet Us @...

**CPI** - Orlando, Fl, USA
from October 5 to 7, 2015
Polyurethanes

**AgroProdMash** - Moscow, Russia
from October 5 to 9, 2015
Energy

**Fakuma** - Friedrichshafen, Germany
from October 13 to 17, 2015
Plastics

**SAVE** - Verona, Italy
from October 27 to 28, 2015
Automation

**Advanced Engineering UK** - Birmingham, UK
from November 4 to 5, 2015
Composites

**ADIPEC** - Abu Dhabi, UAE
from November 9 to 11, 2015
Oil & Gas Industry

**Interplastica** - Moscow, Russia
from January 26 to 29, 2016
Plastics

**JEC Europe** - Paris Villepinte, France
from March 8 to 10, 2016
Composites

**Utech North America** - Charlotte, NC, USA
from April 6 to 7, 2016
Polyurethanes

**K 2016** - Düsseldorf, Germany
from October 19 to 26, 2016
Plastics

Follow Us on www.cannon.com/en/utils/events
For 50 years we have chased your dreams and brought your ideas to life...

...here’s to the next 50! Happy Birthday Cannon!

You have granted us your patronage for 50 years, stimulating a number of successful ideas.

You can continue to share with us your thoughts, gaining time and money when using the equipment we developed with you.

We are proud of what we have been able to do with your help.