



May 3rd 2015, 12:44 GMT time: ESPRESSO COFFEE CONQUERS SPACE

ISSpresso, the first capsule espresso coffee machine for use in space, produced by Argotec and Lavazza in partnership with the Italian Space Agency, is now in operation on the International Space Station

International Space Station, May 3rd, 2015 – Coffee calling Earth: at **12.44 GMT**, the first espresso coffee was drunk in space. An espresso wish finally come true with the help of **ISSpresso, the first capsule espresso machine that can work in the extreme conditions found in space**. It was installed on the International Space Station by Samantha Cristoforetti, the Italian European Space Agency astronaut, Italian Air Force captain and member of Futura, the second long-duration mission sent to the ISS by the Italian Space Agency. Today, therefore, Samantha Cristoforetti becomes not only the first Italian woman in space, but also the first astronaut in history to drink authentic Italian espresso coffee in orbit. The ISSpresso project is an initiative by **Argotec and Lavazza in a public/private sector partnership with the Italian Space Agency (ASI)**.

ISSpresso, one of the nine experiments selected by the Italian Space Agency for Samantha Cristoforetti's Futura Mission, not only symbolises the Italian made technology that has won a place on the space station, but is also the result of advanced scientific research. Making coffee in space isn't easy, requiring some extremely sophisticated technology, and this is the first capsule espresso machine that can work in the extreme conditions in space, where the principles that determine the fluid dynamic characteristics of liquids and mixtures are very different from those typically found on earth. ISSpresso is a veritable gem of advanced technology and engineering, able to produce perfect espresso coffee even in weightless conditions. This is why it was selected by the Italian Space Agency for use on board the ISS.

A coffee break in space. Operations to support the experiment were supervised by the Argotec control center and monitored by the Italian Space Agency's control centers. The first espresso coffee made in space was welcomed with great enthusiasm by Futura Mission crew members. The ISSpresso machine, which uses the same Lavazza coffee capsules as those found on earth, has been designed and built to deliver the same quality as an authentic Italian espresso coffee in terms of cream, body, aroma and temperature. The drink was produced in microgravity conditions and respects all the characteristics of Italian espresso coffee. Once the coffee has been 'poured', a patented new system cleans the final section of the hydraulic circuit and at the same time generates a small pressure difference inside the special pouch used as a space "espresso cup", so that when the straw is inserted, all the aroma of the coffee is released. The pouch is made from a transparent material, making it possible to observe the cream directly as part of the fluid dynamic experiment being conducted and to study the behaviour in space of liquids at high pressure and temperature.

Following, more information on the results of the experiment could be provided.

ISSpresso takes its name from the International Space Station (ISS), on which it has been installed thanks to the access and usage rights held exclusively in Europe by the Italian Space Agency, in the framework of bilateral cooperation with NASA. It is the **first capsule espresso coffee machine that can work in the extreme conditions of space**, where the principles that determine the fluid dynamic characteristics of liquids and mixtures are very different from those typically found on earth. *ISSpresso* was born out of a project by Argotec, the Italian engineering company which specialises in the design of aerospace systems and is European leader in the preparation of healthy and nutritious food to eat in space, and historic Italian coffee brand Lavazza. *ISSpresso* is a technological challenge that satisfies the extremely stringent requirements established by the Italian Space Agency and NASA in terms of technical operation and safety: it represents an important scientific and engineering milestone that will contribute to increasing our knowledge about fluid dynamic principles in conditions of microgravity, as well as contributing to improving astronauts' quality of life on the ISS. The innovative capsule system can also make 'caffè lungo' (an espresso with a little more water than usual) and hot drinks like tea, herbal infusions and broth for rehydrating freeze dried foods. International patent applications have been filed for several of the solutions introduced, which may prove useful both for future space missions and here on earth.

"The experiment represents an advanced engineering project," Italian Space Agency President Roberto Battiston reminds us, "the result of a partnership between the public and private sectors which has produced innovative solutions that will not only have immediate psychological benefits for astronauts, but also generate an important economic return for Italian industry in the sector, promote its image and establish an advanced technology positioning for future space missions".

"With the successful conclusion of today's experiment, we have completed the challenge we set ourselves almost a year ago when we presented the project, not only overcoming the limits of weightlessness and allowing the astronauts on board the International Space Station to drink excellent espresso coffee, that undisputed symbol of Italian made products, but also improving our knowledge about fluid dynamics", commented with satisfaction **Argotec Managing Director David Avino** and **Lavazza Group Vice President Giuseppe Lavazza**, *"The collaboration between Argotec and Lavazza, in partnership with ASI, demonstrates how synergy between two Italian companies, both based in Turin and both recognised for excellence in their own sectors, can deliver extraordinary results of international importance."*

Extraterrestrial technology. Another record set by *ISSpresso* is the speed with which the project was completed, about 18 months, compared with the average for space projects. Every detail of *ISSpresso* has been studied in depth to respond to a scientific and engineering challenge, involving research into the principles of physics and fluid dynamics, such as the problem of managing liquids in space at high pressure and temperature. To give you some idea of what is involved, the plastic tube through which a normal espresso machine receives water has been replaced with a special steel tube that **can withstand a pressure of over 400 bar**. The *ISSpresso* machine is so complex that it weighs about **25 kilogrammes**, because **all the critical components are redundant for reasons of safety**, as required by the specifications agreed with the Italian Space Agency.



To comment on Twitter: #MissionEspresso, #ISSpresso @Lavazza, @argotec_it, @ASI_spazio

Argotec. Argotec is an Italian aerospace engineering company with a broad offering of professional and engineering products, mainly for the space and defence markets. The company is recognised as having many years' valuable experience in various segments of the aerospace sector: engineering, information technology, systems integration, software development, and human space flights and operations. The company's certified instructors train European astronauts and flight controllers at the European Astronaut Centre in Cologne. Argotec also performs research work in many areas of the aerospace industry and is one of the main players in various projects to design and develop thermal and fluid dynamic systems for the International Space Station. These devices are not designed solely for use in space, but also with the aim of developing innovations that can be applied directly on earth. These are the principles underpinning the development of ISSpresso and several highly efficient thermal systems, as well as many other payloads and systems for space. Recently Argotec has developed new nutrition & health expertise at its Space Food Lab, which has a mission to implement innovative technology for the preparation and storage of food in space.

Lavazza. Established in Turin in 1895, has been owned by the family of the same name for four generations. The world's seventh ranking coffee roaster, today Lavazza is the retail market leader in Italy with a market share by value of over 47% (source: Nielsen), 3,100 collaborator and sales of EUR 1,340 million (as of December 31, 2013). The company has five production sites, four in Italy and one abroad, and operates through associated companies and distributors in more than 90 countries. Lavazza exports 46% of its production today. Lavazza invented the concept of blending - or in other words the art of combining different types of coffee from different geographical areas - in its early years and this continues to be a distinctive feature of all its products. The company also has 25 years' experience in the production and sale of portioned coffee systems and products and was the first Italian business to offer capsule espresso systems. Today, through ongoing partnerships with an international network of universities and scientific research centers, Lavazza operates four platforms in this segment. Lavazza is the official coffee at the Italy Pavilion, Expo 2015.

For information

ASI

Press Office
Giuseppina Piccirilli
06.8567.431-351/ 366.6449857
stampa@asi.it
www.asi.it

LAVAZZA

Public Relations – Press Office
Edoardo Fulio Bragoni
011 239 8377 | 340 38 72 907
e.fuliobragoni@lavazza.it
www.lavazza.it

ARGOTEC

PR and Communications Office
Antonio Pilello
011.7650.567/ +49.1577.6813.122/ 347.8513.122
press@argotec.it
www.argotec.it