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PRESS RELEASE

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Finmeccanica contributes essential technology for the Rosetta mission

Many of the Rosetta probe's on-board and ground-based instruments, as well as those of the mission's Philae lander, are Finmeccanica-made

- **Finmeccanica - Selex ES provided the 'space drill' which will start digging into the comet surface**
- **Finmeccanica - Telespazio designed and produced the mission's planning and control system**
- **Thales Alenia Space is involved in the mission's satellite assembly and integration activities**

Today within the European Space Agency (ESA)'s Rosetta mission, the Philae lander touched down on the 67P/Churyumov-Gerasimenko comet. The Italian technical and scientific contribution among Research Institutes and Industry has been coordinated by ASI, the Italian Space Agency.

The **Finmeccanica** companies Selex ES, Telespazio and Thales Alenia Space, have played key roles in the success of the mission so far by providing numerous on-board and ground-based instruments and systems. Finmeccanica - Selex ES's specially-designed 'space drill', known as the Sample Drill and Distribution (SD2) system, will start drilling down into the comet's soil surface to a depth of 30 centimeters in the hours following the lander touched down. The SD2 will acquire samples of material from the comet, allowing on-site analysis that could provide important information on the birth and evolution of the Solar System.

In addition to the SD2, **Finmeccanica - Selex ES** also developed for ASI innovative robotic systems and sophisticated electro-optical instruments based on hyperspectral technologies. These include the A-STR Autonomous Star TRacker, which correctly orientated the Rosetta probe in space and adjusted the antenna to allow signals to be received from Earth; the NAVCAM camera, which aided in the probe's navigation; the VIRTIS (Visible InfraRed and Thermal Imaging Spectrometer) instrument which measured the temperature of various features on the comet; the GIADA (Grain Impact

Analyser and Dust Accumulator) which analysed the comet's dust and particles and the photovoltaic assembly, the widest ever produced for an ESA scientific mission with a surface measuring 62 square metres. Other smaller solar panels covering 2 square metres were installed on the Philae lander's surface, generating the power for its on-board instruments to work on the comet surface.

Finmeccanica - Telespazio, with its subsidiary Telespazio VEGA Deutschland, designed and built the Rosetta mission's control and mission-planning system for ESOC (European Space Operations Centre) and the orbiter's real-time operational simulator. Telespazio experts are part of the ESA operational team that manages Rosetta and controls its approach and revolution trajectory around the comet and are also part of the German Space Agency (DLR)'s team that deals with the Philae landing module's technical management.

Thales Alenia Space was involved in the mission's satellite assembly and integration. It also looked after the definition and procurement of the mechanical and electrical ground support equipment. In addition to its crucial role during the launch campaign, Thales Alenia Space built the satellite's special on-board S and X-band Deep Space Transponder, necessary for the probe to communicate its findings back to Earth.

Rosetta's trip

Launched on the 2nd March 2004 from Kourou, French Guiana, Rosetta has traveled more than 6 billion kilometers. Taking advantage of the 'gravity assist' maneuver several times on its voyage, the probe used the gravitational pull of Mars (once) and Earth (three times) to accelerate towards its destination. Rosetta passed close by the "Steins" and "Lutetia" asteroids in 2008 and in 2010 respectively before flying onward in a hibernation state from 2011 to 2014, towards the rendezvous with comet 67P/Churyumov-Gerasimenko somewhere between Mars and Jupiter.

On the 20th January 2014, after 31 months in hibernation, the spacecraft was automatically woken up by its internal clock and, with no signals from Earth, continued its journey towards the primary goal of its trip: the comet 67P/Churyumov-Gerasimenko. The probe began orbiting the comet on the 6th August this year and the lander touched down on the 12th November to begin its studies.