Terminals In Tórshavn

Daniele Sciuto, Euromecc s.r.l., details the installation of a cement terminal for Articon in Tórshavn, the Faroe Islands.

Based in the Faroe Islands, Articon has been involved in the construction industry for more than 20 years. The company's increasing business volumes, combined with the remote location of the country, led Articon's CEO to put in place a target of reaching raw material independence. Initial discussions around the installation of a cement terminal therefore started back in 2015.

The preliminary discussion

The main challenge of the project became clear early on; although the country has a relatively mild climate and does not suffer hot summer temperatures, it is extremely wet and exposed to very strong winds up to 215 km/h. With this in mind, and a basic requirement for 5000 t of storage capacity, initial discussions explored different setups such as upright bolted silos

of 12 500 mm in diameter, as well as modular concepts with the aim of achieving a compact layout and the weight load being spread over a wider surface to reduce the cost of foundation works. The second concept also offered a reduced overall height, being much more compact than standard upright silos, and this was considered a plus, as it was initially believed that height could become an issue in the permit application process.

After 14 months, both proposals were put on hold in order to gain a better understanding of the economic and environmental aspects of the project.

In 2020, the discussion was reopened, with the necessary ROI for the asset having been considered.

Basic engineering diagrams help to demonstrate how installations can integrate with their surroundings.

The Euromecc design allows modular installations in large sections to minimise the number of horizontal connections (left). Working at reduced height simplifies the operations and reduces the need for special equipment (right).

The project commences

Euromecc and Articon discussed the technical and functional aspects required for the silos in order to design a solution in line with their expectations and one suitable to obtain planning from local authorities. This led to a storage terminal of approximately 4000 m^3, 5150 t of general cement, completely dedusted and fed by self-discharging vessels. Downstream equipment can be used to load cement tanks. Two bolted upright silos of 12 500 mm diameter and 1980 m^3 capacity have been installed. The silos are completely independent and able to store different products, enhancing their flexibility.

Each silo has a fluidised 53° cone, activated by a shared 600 m^3/h air blower to keep the cement aerated, and discharge onto a Ø 457 mm screw conveyor, with a capacity of 150 tph. Both conveyors are then connected to a dedusted loading spout and placed above an overground weighbridge.

Another important aspect to consider during the design phase was related to the challenging weather of the Faroe Islands; every electrical component had to be properly housed in a minimum of IP65 panels/junction boxes in order to preserve them from the combination of wind, rain and seawater.

Regarding the aesthetic of the project, the silos have a particular two-colour finish, matching their surroundings. The silos and accessories are pearl white on the lower sides and slate grey on the upper sides.

Logistics and installation

Considering that the project was awarded after the first wave of COVID-19 in July 2020, there was some concern around the logistics and installation. During the pandemic, the world experienced a lack of empty containers and an increase in sea-freight rates, especially in small size ports. Therefore, the most economical and timely solution to transfer material from the Catania port, near to the Euromecc manufacturing site, to Tórshavn was a mixed form of transport. Containers were loaded in Catania and sent by road to Rotterdam where they were moved on vessels and sent straight to the Faroe Islands. The long journey required detailed planning in order to avoid overcrowding at the site, and guarantee the continuity of the installation sequence.

Cold test being carried-out with road tankers (top). Cold tests are used to check all equipment and calibrate weighing instruments (bottom).

The first vessel filling silos while welcoming 2022's first sunrise.

The equipment was shipped with a timeframe of 45 – 60 days.

Once goods were available and cleared at the site, the installation crew coordinated by Euromecc staff started the erection. It took approximately 16 weeks to install and start-up the terminal, thanks to the Euromecc construction method which uses long vertical panels in order to minimise the horizontal connections together with the work at height. This has been particularly profitable on this occasion, considering that the challenging wind could have delayed some of the crane lift. Furthermore, the Euromecc silos are joint with external flanges, so that no operations in confined spaces are required during the installation, with a tangible benefit for H&S procedures.

The erection process was articulated in different phases, with some operations being shifted due to regional holidays in the country as well as COVID restrictions, and some waiting in the sourcing of bulk cement.

Finally, the full-load commissioning of the first vessel was competed during New Year's Eve, welcoming 2022 with achievement for both Articon and Euromecc.

Conclusions

This project has helped guarantee that cement is available to support the consumption of Articon, a company that has contributed to the development of infrastructure in the country.

Torleif Waagstein, the COO of infrastructure at Articon, noted that business conditions and cooperation during the project were good, and there was a level of trust between Euromecc and Articon at all times. During the initial building of the silos, Euromecc were flexible in relation to any changes.

Articon was also pleased with the supervision and assistance during installation. Some of Euromecc's employees were stationed in the Faroe Islands at the time of silo filling, and it took around 15 hours to fill both silos (approximately 4000 t). ■

About the author

As a sales and technical marketing specialist dedicated to the Commonwealth and MENA regions for Euromecc srl, Italy, Daniele Sciuto is focused on the development of new projects from their feasibility phases either for independents and big corporates in the bulk materials industry.

Daniele has a Mechanical Engineering background, and has been involved in the technical development, costing and sales of several terminal projects all around the world since 2012, when he joined Euromecc.