ACO Surface Water Management Press Release

Palma de Mallorca Airport

Palma de Mallorca Airport (PMI) reopened its northern runway (06L-24R) at the end of 2020, after completing the surface restoration work; a construction project that the companies MAB Obras Públicas S.L and Sampol Ingeniería y Obras S.L. have participated in, and which received consulting services from the AERTEC engineering firm. The runway, with a length of 3,270 metres and a width of 45 metres, now also has almost 6,000 linear metres of the new ACO Qmax Neo high-capacity drainage channel for the collection and evacuation of rainwater and wastewater.

In order to guarantee that the northern runway of the Palma de Mallorca Airport complied with the highest standards in the fields of safety and operational reliability, AENA (Spanish Airports and Air Navigation) commissioned different actions to be carried out, such as the replacement of all the beacons and the existing light signals with LED technology, and the renovation of the runway's surface. In the first case, the measure sought to improve the energy efficiency of the airport's infrastructure and, in the second case, with the restoration of the ground, it sought to adapt its runways and build two rapid exit taxiways for aircrafts.

To increase safety on airport runways, the rainwater drainage system was also renovated to prevent any flooding of the runways, especially during air operations in rainy conditions. This new water evacuation system was designed with 8,000 linear metres of maximum-capacity drainage channels, most of which are the new ACO Qmax NEO 300 model.

This system is characterised by a circular channel design with a diameter of 300 mm. It guarantees the collection and channelling of rain and wastewater up to 550 l/s without a gradient, while also offering high resistance and a F900 load rating (according to European Standard EN-1433) that allows it to withstand the passage of aircrafts or other heavy-duty vehicles. In addition to collecting and channelling water, Qmax also allows water to build up within the channel capacity, regulating the volume of water that enters the sewer system and allowing for the effective control of peak flows during a storm. The chosen grate is the cast iron Q-FLOW model.

According to the MAB construction company, "The drainage solution works perfectly, in fact, during the first few weeks of 2021, we had episodes of heavy rain and we had the opportunity to test its capacity. The result has been satisfactory."

The lightness and modularity with which the ACO Qmax Neo 300 is manufactured and installed was also a value that played a role in the selection thereof. Supplied in pre-moulded pieces with a length of 2 metres that are stackable and transportable, the technicians were able to easily handle and position the pieces so that the 45-day deadline for the renovation of the airport runway could be met.

In addition to the Qmax drainage channels, 11 high-strength Combipoint PP grates have also been installed on the sides of the runways and 46 circular Multitop cast iron manhole covers.

Construction Project: North runway of the Palma de Mallorca Airport (Spain).
Client: AENA - Spanish Airports and Air Navigation
Engineering Firm: AERTEC Solutions
Construction Company: MAB/Viarium.
Completion Date: 4th quarter of 2020.
Product Supplied: ACO DRAIN© Qmax 300 Neo, ACO DRAIN©Qmax 350 and 550, ACO Qmax Access chambers, ACO Combipoint gullies, ACO Citytop manhole covers

ACO DRAIN© Qmax Neo in detail

The ACO DRAIN© Qmax Neo is a new member of the ACO Qmax family which now includes the range of sizes from ∅150mm, 225mm, 300mm, 350mm up to egg shaped 550mm, 700mm and 900mm. In particular the larger sizes offer an enomous retetention volume. The collected rainwater can temporarly be stored and then discharged into the sewers system in a controlled manner during heavy rainfall events.

Intergrated gaskets make the cannel watertight in accordance with EN 1433. All sizes can be combined in a project by tailormade inlet shafts and inspection elements to perfectly meet the hydraulic needs of the project. In case of areas without a terrain gradient the slope can be realised by special height adapters to achieve a slope within a channel section.

Even with different nominal widths underground the surface appearance stays uniform and straight. Due to the narrow rail options in cast iron, composite or steel the surface design is discrete up to the highest load class F 900.

The pavement beam feature permits continuous reinforcements positioning and flow of concrete through the top part of the product during installation. An easy installation is supported with the help of an installtion jig. The installtion jig keeps the product in place during the installtion process. By this the alignment of the edge rail is already ensured during the concrete pour which fixes the installation jig.

Like all other sizes of the Qmax family also Qmax Neo is load tested up to class F 900 according to EN 1433. Based on this certification it is suitable to applications with highest load clases as there are logistic areas, harbours or aiports.

The light weight product can optionally be delivered for assembly on site, supported as a full service by an ACO service team. This option saves transport costs and CO2 emissions particularly in case of long distance deliveries to large projects.

The product will be presented on inter Airport europe, Munich, 09. - 12.11.21, hall B6, booth nr. 860.

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