

Project: Supplying HV cable for mission-critical airport power

Solution: Fast-track delivery of massive cable order

When Downer Engineering installed kilometres of power cabling alongside the runway at Melbourne Airport, the mission-critical environment required the project to be completed within a very tight time frame, since minimal air-side disruptions could be tolerated. Likewise, Downer's suppliers had to meet equally tight delivery schedules.

Downer's Gary McGrath explains: "The design-and-construct project involved installing new power distribution for the air-side lighting, control tower, fire station and associated facilities. This became the main electrical supply, with the old system remaining as a backup. Since 70% of the works were air-side, we had security issues to deal with, along with the odd aircraft to watch out for."

Melbourne-based World Wire Cables (WWC) was approached to supply 6800 m of 3-core 240 mm² 22 kV-rated aluminium power cable in eight weeks - a big ask, considering the cable had to be made to order and shipped from Shanghai.

"Downer stressed the importance of meeting their deadline as we negotiated the contract," recalls WWC Australia CEO, William Wang. "We take every project delivery schedule seriously; so I reassured them that we wouldn't commit to any contract unless we were very confident we could meet the schedule.

"We had eight weeks to deliver the cable to the airport. The contract had some stiff late-delivery penalties in it, but we have a very good track record of prompt delivery, so it didn't concern us, even though it was an aggressive schedule. Because WWC has seven

factories in China, we have the production capacity to accommodate the order. We fast-tracked the order and had it made in a matter of weeks. Before leaving the factory, per our standard procedure, the cables were 100% performance-tested to AS 1660 to ensure suitability to the Australian application."

But that was just half the challenge. The order consisted of seven 4.5 m diameter drums, each weighing several tonnes and requiring their own low-deck semitrailer to haul them from the factory to the docks. Because of the sheer size of this convoy, traffic congestion on roads and bridges was a major issue. WWC had to lobby the local government to grant a special permit to make this exceptionally large and long haulage possible.

The entire logistical process was mapped out in advance to ensure nothing could go wrong for this mission-critical project. True to its word, WWC delivered the full order on site two days before the deadline.

"Once on site, the cable was re-tested to ensure it wasn't damaged in transit," remarks Wang. "Ordinarily, power cable only requires testing once to verify performance, but the airport engineers supervising the project were fastidious about everything being perfect. That's understandable, because the cable was going to be direct buried along the runway with concrete a metre deep poured over it. There was no way they were going to allow a problem to occur that would require digging up the runway and risk disrupting flights."

During the acceptance testing, one conductor in a section of cable yielded a low-performance result. When Downer questioned that cable's quality, Wang responded that, since the cable showed no signs of transit damage, the problem could have been caused during installation instead. But rather than just pointing the blame somewhere else, Wang consulted his own engineers to assist in resolving the issue. The local WWC engineers recommended a test procedure that took into consideration the appropriate handling of the semiconductive coating on the conductors; and once followed, yielded compliant results, much to Downer's and the airport's engineers' relief.

Wang recalls: "The chief engineer stood beside me on the runway during the commissioning tests and said: 'If something goes wrong, you can imagine the consequences - there's no margin for error!' I felt like I was being held hostage during that 15-minute test - as if the success of the entire runway project was resting on my shoulders. But with our excellent track record on other major projects in Australia, I was very confident in the reliable performance of our cable, just as I was in our ability to deliver the cable on time too."

McGrath adds: "We had no doubts about WWC's ability to supply the cables. They provided us with all the right technical data and the accompanying information on its delivery."



World Wire Cables Australia Pty Ltd

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