

The future-ready water plant



Along with the comprehensive planning and collaboration involved in a large-scale development project, to ensure a fit-for-purpose solution the critical considerations for suppliers, trades and other service providers are invariably scalability, longevity and the unique customisations required by specific sites and operations.

Getting these primary factors right means involving the right expertise and securing the supply of the highest-quality components. This is why an end-to-end solution using high quality products from globally recognised brands such as Siemens, TDK, Modutec and Teknomega was chosen for the switchgear and control systems of a brand-new water treatment plant in Rotorua.

Beginning in 2023, the plant's owners and operators identified that Siemens' world-class hardware and technology would not only deliver the ideal outcome for immediate operational requirements, but would provide the insights needed to make informed, data-driven decisions long into the future.

Choosing Siemens for the superior quality and performance of its products had the added benefit of securing the involvement of product supplier Cuthbert Stewart Limited (CSL) who engaged board-building

partner, Hamilton-based switchboard specialists, Industrial Switchboards Limited (ISL) – a collaboration that would deliver considerable expertise and efficiency.

This complex project saw the design and construction of a 1600 Amp main switchboard, 2 motor control centres (MCC) and two active harmonic filters. All units were constructed at ISL's brand new factory with seamless integration achieved through the total Siemens solution that included switchgear, metering, ATS controls, intelligent motor starters and PLC along with many other products from CSL's extensive portfolio.

Underpinning this premium solution with comprehensive protection, monitoring, and control functions for low-voltage motors is Siemens' world-class motor management system, SIMOCODE.

Specifically designed to enhance plant availability, SIMOCODE also reduces maintenance, and optimises process control, particularly in the process industry through its state-of-the-art modular motor management platform.

CSL's product manager for power distribution & panel products, Koloa Hau, says that this project reinforced how ideal the unified Siemens product suite is for demanding and complex operations that require superior long-term



FEATURED IN THIS PROJECT:



performance with low total cost of ownership.

“The water industry increasingly demands digital capability to maximise efficiencies and control. We delivered this and showcased the value that a collaboration between two highly capable organisations can bring to the largest and most complex projects.

“The team at ISL brings a wealth of knowledge and expertise to every project, consistently delivering the highest levels of electrical craftsmanship. Our partnership is based on a shared commitment to capability, efficiency, safety and cost-effectiveness and resulted in a complete solution of the highest quality and performance,” he says.

Craftsmanship excellence

Established in 2021, ISL is a young company with an extensive amount of experience and skill. Led by registered electricians, general manager Eric Griffin and engineering manager Matt Pehi, the company's team of eight electricians and apprentices has over 75 years of combined switchboard building experience.

“The high degree of knowledge and proficiency within our team has seen us build switchboards, control centres, PLC racks and energy management systems for some of New Zealand and Australia's largest and most important facilities. Partnering with CSL on this project really favoured our familiarity with the Siemens automation platform and tailoring it to the unique requirements of the site and application,” says Griffin.

Ongoing training and professional development is a

vital focus for ISL's apprentices and electricians and Griffin says this extends well beyond the important electrical and board building competency and recognises that it's a core reason the company's capabilities are so well regarded in the industry.

“While our training naturally focuses on delivering the highest quality workmanship, we also prioritise our team's understanding of what's important to our customers. Aspects like how our efficiency impacts total cost of ownership and how our lifetime stewardship of every solution we deploy provides maximum confidence and assurance,” says Griffin.

He emphasises that this project incorporating products and solutions from CSL's world-class portfolio of brands provided countless opportunities to train and enhance ISL's collective breadth of knowledge.

“The success of this partnership is not only apparent in the excellent outcome delivered, but also in the extended collaboration behind the scenes. Every component used from top-to-bottom is from CSL, so their willingness to make their product experts available to our team provided enormous value to our knowledge base and ISL's commitment to training,” says Griffin.

Total project solutions

As the New Zealand distributor of Siemens products, CSL → has become synonymous with the global technology leader. The company is well known for bringing leading technology and innovations to the New Zealand market with all of this





project's non-Siemens components also drawn from CSL's impressive portfolio.

Koloa Hau says it was fitting that CSL's brands provided high quality components to the overall solution and proved the value of sourcing products from one cohesive range.

"There is lots to be excited about in this project and not just in specific products and technologies. We've carefully curated our portfolio over many years to be a one-stop-shop that provides options and flexibility while being interconnected and unified," he says.

The resulting solution incorporates innovative products and technologies from a range of manufacturers that operate seamlessly together.

"In the MCCs we've used Teknomega's J-Link tinned-copper flexible busbars and the team at ISL is very impressed with the advantages, especially the super-thick but ultra-flexible insulation that can withstand tight bend-radiuses. Given the location for these MCCs, the added protection against H₂SO₄ is essential in Rotorua and other geothermal locations."

"The two large active harmonic filter units are constructed in our TechLab engineering centre and use TDK's modular technology that will ensure the site avoids line resonance and maintains high performance and reliability by eliminating harmonics, actively balancing the loads to all three phases and performing dynamic VAR compensation and some transient compensation," he says.

The main switchboard and MCC's were constructed by ISL using CSL's high quality, type-tested Modutec metalwork and enclosures with the whole deployment being underpinned by the Siemens' SIMOCODE motor management system.

"Siemens SIMOCODE is the key to delivering long-term assurance for the plant. This smart solution is ideal in the water industry where it helps prevent pump blockages and increases availability while offering superior asset and process protection.

"The site's operators will be able to interrogate and diagnose multiple aspect of the plant in real-time with total visibility of comms protocols, scalability and resource allocation, proactive maintenance and safety – it delivers truly comprehensive monitoring and control," says Hau.

With CSL supplying all of the componentry and equipment there was much to gain in time and cost efficiency. Additional savings were achieved with mechanical modifications to the Modutec metalwork being completed in the company's TechLab Engineering Centre, further cementing CSL as an excellent total-solution partner.

"TechLab has had a significant impact by delivering speed and savings to the manufacturing process with our Rittal Perforex upright milling machine measuring, cutting and punching 93 enclosure doors. We completed this in two days and estimate a 25-minute time saving per door over conventional approaches, along with the extra assurance of →

precision and accuracy.

The engraved identifier labels throughout the project were also completed in TechLab's labelling centre adding a uniform and professional polish to an already impressive job and proving the value of partnering with a one-stop-shop for large and complex projects," says Hau.

Winning collaboration

As with any project of this scale, some challenges emerged but Eric Griffin says that overcoming the hurdles was another area where the core values and principles of this partnership really shone.

"We are always eager to put new technologies and innovations through their paces and provide our key supply partners like CSL with authentic feedback that they can trust and react to with confidence. The Teknomega J-Link tinned-copper flexible busbar is one great example, with our team praising the thickness and flexibility of the insulation and the major advantages it offers during installation as well as the tinned copper providing the ideal solution for NZ's harsh geothermal environment and prevalence of H₂SO₄.

"As we encountered issues typical of these projects, it was very clear what adjustments were needed to be made and together with CSL we addressed these immediately and developed solutions that meet the requirements of any complex project across New Zealand and Australia," he says.

Griffin is excited at what the two companies can achieve together, an opinion echoed by CSL managing director, Phil Elliott, who says its these kinds of projects that prove the value of finding the right partners based on their business philosophies just as much as technical or commercial competence.

"It's clear that one of the major successes of this 18-month collaboration, beyond the first-class solution

outcome, was the further cementing of a partnership that will be long-lasting and deliver tremendous value and quality for customers of both ISL and CSL.

"We continually focus over 75 years of industry experience to ensure a comprehensive suite of products that integrate to solve problems, answer questions and offer cohesive and flexible approaches to any industrial or commercial undertaking. ISL is precisely the kind of company we do this for as they validate and complement our philosophy by striving to get the very best out of every product. This gives us certainty that our portfolio has everything required to deliver excellence," he says.

More from this project:

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[TechLab](#)

[SIMOCODE: Reliable and efficient motor management](#)

[J-link Flexible Tinned Copper Busbar](#)



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