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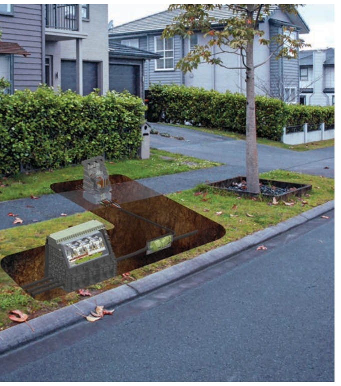
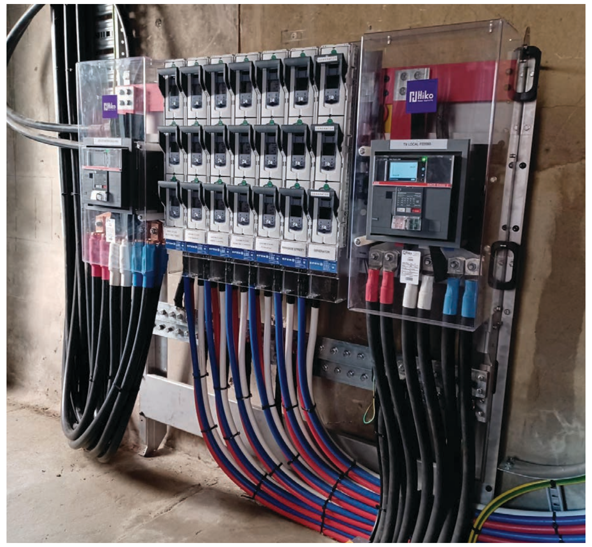


Power engineering and product support from Hiko

When the company known today as Hiko Power Engineering began supplying electrical equipment, components and tools to electricity utilities 85 years ago, designing and manufacturing its own product solutions for power distribution networks was not part of the plan.

But today it is a major driving force of the company having developed advanced assemblies that make connecting assets to networks safer, easier, more reliable and longer lasting, says Hiko Power Engineering general manager Geoffrey Sullivan.

These Hiko innovations include underground distribution pillars (UDPs), underground service connections for branching networks (U-Pillars), network link boxes, link pillars and distribution cabinets and modular LV frames for transformers.



Whether it is components, accessories or complete assemblies, Hiko Power Engineering provides a range of solutions for connecting assets to networks

Sullivan says Hiko Power Engineering has come a long way since Harry Hamer left Gough, Gough and Hamer, along with the company's electricity product agencies. The company began manufacturing in 1959 in partnership with Bowthorpe and today Hiko manufactures the Bowthorpe HD series of line taps as its own brand and supplies product locally and to countries around the world who use British standards in their networks.

While the company continues to supply products from its exclusive European agencies such as EFEN, NKT, Pfisterer, Weber, Langmatz, Polaris and Gridkey, Hiko Power Engineering is now both a supplier of components and an engineering company designing and manufacturing assemblies for electricity distribution systems.

Sullivan says there is a lot more science and engineering that goes into the solutions the company makes today, and it was their customers that drove them down that path.

"About 20 years ago network operators were happy with the products and components we were supplying through our agencies. They were using some of them to construct distribution pillars, low voltage frames for transformers and other subassemblies but were not satisfied with the consistency of the results they were achieving in the field.

"To improve this, they asked us to go the next step and make up assemblies for them in a controlled work-shop environment, then ship each assembly as a complete plug-and-play unit they could rely on and simply install it.

"So, while we were established as an importer and distributor of electrical products for the electricity supply industry, the design and manufacture of our own assemblies and products to recognised standards has also become a major focus."

Sullivan says all their engineered solutions are quicker to install and reduce cost at time-critical sites.

Innovation

The company's most recent innovation is the U-Pillar which utilised the expertise in underground switchgear developed by the Hiko engineering team in its development of its UDP distribution system.

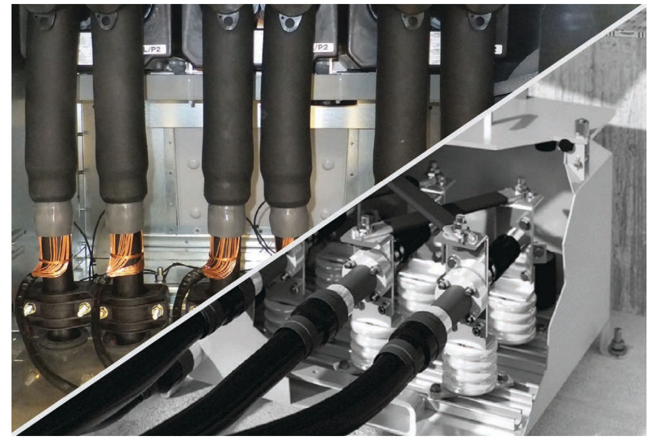
The Hiko UDP (underground distribution pillar) combines industry-standard fusegear including EFEN DIN-type disconnects with Langmatz modular pits for distribution, reticulation and service supplies up to 1000 amps. Engineered to last, the underground pillar protects the fusegear by housing it under a composite 'bell' cover which creates a permanent air pocket for the fuses to safely operate in.

While the principle of using an upside-down air cavity to protect underground switchgear in flood conditions has been long established overseas, Hiko introduced it to New Zealand 12 years ago in its UDP family of underground link boxes. Today many electricity networks benefit from the technology developed by Hiko Engineering and utilise the UDP range with up to six circuits and a mix of bus couplers, vertical fuses and switches.

Hiko development and engineering manager, John Spence, says their successful adaption of the air pocket technique in the UDP range, enabled Hiko to extend it further in the development of its U-Pillar.

Now up to 100 amp fuses and 160 amp horizontal disconnects can be designed into customisable U-Pillars covered by Class B and D lids for high traffic areas and roadways, says Spence.

"We designed the U-Pillar as a complete pre-wired unit that keeps the fusegear dry under a transparent bell. While you have to pump out any water to carry out maintenance on UDP switchgear, we designed the smaller U-Pillar to allow the whole fuse stand to be lifted out of the water and worked on securely above the ground without having to use a pump."



Hiko Power Engineering supplies components and equipment from a range of European manufacturers including EFEN, NKT, Pfisterer, Weber, Langmatz and Polaris

Spence says products like the U-Pillar have been developed in close collaboration with customers to ensure the final solutions take away the risks they face with potential installation and maintenance errors using traditional methods.

"The high engineering values we design into each product provide a lot more certainty that our U-Pillars, UDPs and LV frames will deliver consistency and reliability by design to meet both the safety and lifetime expectations of network operators," says Spence.

"They might not open a cabinet for years, but they can rely on our solutions to deliver safe, predictable and easy access for maintenance work at any time of the night and day and under any conditions."

To ensure this safety and performance by design, Hiko mechanical and electrical engineers worked with network contractors on site, sometimes in the middle of the night, to understand the issues they faced.

"We addressed these problems through risk analysis and applied a range of mitigating solutions such as touch reduction, arc initiation protection, lowering the weight of designs and making them modular so products like LV frames are easier to work with," says Spence.

The U-Pillar has been designed to be as easy to maintain as it is to install

"While our focus is on ensuring the safety of everyone installing and maintaining the equipment, we also ensure the safety and performance of the network architecture through precision engineering, material selection and comprehensive testing.

"We stress-test risk elements in our designs like thermal testing of busbars and underground products to ensure they remain within tolerable limits under full load. We also test insulator strength and stress-test busbar mounts to ensure they will not fail under extreme conditions."

Further engineering and high voltage testing is carried out in the EPECentre at Canterbury University.

Customised solutions

Geoffrey Sullivan says Hiko Power Engineering continues to develop its asset solutions with more than half the company's production today being customised to meet the standards and requirements unique to each network, regardless of the age and type of transformer.

"We have developed an extensive library of CAD designs to enable us to provide any design variation for a lines company based on the pre-engineered combinations we have already established. This enables us to minimise downtime for our customers where an emergency replacement is required.

"We also supply CAD drawings to customers with quotes so they know what they are getting before the product turns up so they can verify beforehand, for example, that every frame fits the intended transformer."

Hiko's South Island key account manager, Mike Scott, says while Hiko engages with its customers very effectively and collaboratively at an engineering and design level, the company also continues to supply a large portfolio of quality European components and equipment designed to connect assets to networks.

"We supply everything from Bowthorpe line taps, Pfisterer IPCs and fuse holders for overhead line connections, through to Insulect substation disconnectors, electronic sectionalisers, and airbrake switches. We also supply underground NKT and Pfisterer LV, MV and HV cable accessories to connect the network to transformers, LV frames and substation switchgear."

While these products take care of connectivity between network assets all the way to the end-consumer, Hiko is also supporting network planners, engineers and operators with remote monitoring of LV loads using the Gridkey system.

Scott says by installing a Gridkey low voltage monitoring device on an LV-frame, actionable real-time data can be gathered to detect phase imbalances, warn of potential voltage and temperature problems, monitor total harmonic distortion (THD) and assist in fault location.

He says Gridkey also provides network companies with tracking data over time so that they can more effectively plan for network upgrades. This type of monitoring can help networks future-proof against the impact of PV and EV installations.

"Hiko Power Engineering is the ideal partner to help manage changing LV loads with the latest technology. This includes frames with fused switchgear or with remotely controlled MCCBs – all designed to protect networks and communities." ■

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