

SPANSET RESTRAINTS IN SNOWY SOLUTION

Australian ingenuity helps solve Snowy Hydro 2.0 restraint issue. The Snowy Hydro project required a restraint system capable of withstanding freezing conditions and tension demands. A specialised company with expertise in bespoke products was needed, so Smith Global and Midland Trailers turned to SpanSet.

SNOWY 2.0 IS THE NEXT CHAPTER IN THE Snowy Scheme’s history. It is a nation-building renewable energy project that will provide on-demand energy and large-scale storage for many generations to come.

The project involves linking two existing dams, Tantangara and Talbingo, through 27km of tunnels and building a new underground power station.

Concrete segments for the tunnels are manufactured at a \$55 million purpose-built factory in Cooma, producing 130,000 segments that make up the concrete rings that line the tunnel. The first concrete segments for Snowy 2.0’s tunnels will be manually produced at the Polo Flat factory, with an automated carousel system to be established later. The segments will create around 14,500 concrete rings that line the tunnels linking Tantangara and Talbingo dams to the new underground power station.

Safe transportation of the concrete segments was a significant consideration for Snowy 2.0’s Project Team. For the right solution, it turned to the engineering and ingenuity of three leading Australian entities, SpanSet Australia, Midland Trailers and Smith Global Consulting.

While the Snowy Hydro team wanted a restraint system that was available off the shelf, cheap imported products would not cut it for this project, they would not have been capable of withstanding the freezing conditions and tension demands.

Therefore, they needed a specialised company with expertise in bespoke products. Smith Global and Midland Trailers turned to SpanSet.

SpanSet Australia was approached to help solve the load restraint application to be used in conjunction with the unique tensioning system designed by Smith Global Consulting and specialised, 14 PBS-approved B-triple innovative combinations designed and manufactured by Midland Trailers.

SpanSet’s Paul Butler, manager for Queensland and Papua New Guinea describes how the project came about.

“I was first contacted by Midland Trailers and Smith Global Consulting in August 2020. The initial request related to SpanSet’s high pretension Ergo ratchets; however, I quickly saw that a hand ratchet assembly would not suit the extreme conditions and very high pretension required.

“Also, the Snowy Hydro Project team were looking at transporting the segments in -20C temperatures, frost and snow, conditions which will create the ability for ‘ice on ice’ to develop between surfaces. This lowers the level of friction on the dunnage and on the surface of the first segment mounted on the trailer. Given the circumstances that the worst conditions would prevail, there needed to be increased friction on the material/webbing,” he said.

The load restraint system was designed



MaXafe heavy duty lashing manufactured by SpanSet is a high-performance webbing with an extremely low elongation of less than two per cent.

to hold the Snowy Hydro 2.0 concrete segments on the C triple trailer’s carrying nine segments per load, on three trailers with an all-wheel drive.

“Following the initial contact, we engaged our colleagues at SpanSet-secutex in Germany to provide specialist technical and product support on the SpanSet-secutex *secuGrip 90* friction product to ensure this would suit the project’s requirements,” said Butler.

The adhesive coating *secuGrip* combines the proven *secutex* polyurethane hardnesses with a newly developed acrylate adhesive film. *SecuGrip* reliably protects high-quality surfaces against wear and damage and independent testing institutes comprehensively confirm the remarkable anti-slip properties. *SecuGrip* is a proven product for securing loads.

SpanSet-secutex conducted extensive testing, ensuring the *secuGrip* product could guarantee a minimum .25 friction in ice on ice at -20C.

“We conducted extensive testing of our *secuGrip 90* friction product, and where possible, simulated the extreme conditions the system would face as per the project’s requirements. Special fixed bolster pads were designed for each trailer and these were used as protection and

provided enough friction to ensure the concrete segments would be stable during transportation. Each fixed bolster pad was constructed of *secutex* buffer pad with a layer of *secuGrip* 90.

“SpanSet-*secutex* also designed the special *secutex* corner protection used on top of concrete segment load for protection and these also ensured pretension clamping force. SpanSet Germany’s Global Load Control Competence Centre was also engaged to provide support on the use of the MaXafe high-performance webbing and specialist connections such as the SpanSet Joker Hook,” said Butler.

MaXafe heavy duty lashing manufactured by SpanSet is a high-

performance webbing with an extremely low elongation of less than two per cent. The webbing is manufactured from abrasion and cut resistance fibers, which means a longer service life and lower operating costs. The webbing is approximately 50mm wide and has the same strength as 75mm heavy-duty polyester webbing. This equates to a 24 per cent reduction in weight, allowing the operator to secure a heavy load easily and quickly.

SpanSet’s engineers visited Midland in Parkes multiple times to witness the job and the issues they were facing to engineer the right product for the job. SpanSet also purchased a specialised German Engineered CNC sewing machine solely

for this project, specialised thread, and airfreighted nearly 2km’s of their MaXafe webbing. While they bought the webbing in from overseas, the design, engineering, sewing, and testing were all done here in NSW Australia with SpanSet’s team of experts.

The specialised CNC sewing machine has been fitted with custom manufactured jigs, ensuring that all sewing patterns are performed and placed correctly on the webbing.

This precision sewing guarantees that the webbing has the maximum restraint capacity, ensuring that loads are held securely. A large amount of research, development and testing has gone into the MaXafe product prior to it being released in Australia.

After months of work, including globally developing and testing all components with the SpanSet Group, the order for the project was received in April 2021.

SpanSet continues to work with Midland, Smith Global and Snowy 2.0 / Future Generation Joint Venture to ensure the project’s success. ●

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The load restraint system is designed to hold Snowy Hydro 2.0 concrete segments.