

Case Study



Challenge

One of the UK's largest network operators needed to significantly increase network fiber capacity while reducing aerial cable pole congestion and minimizing installation costs.

Solution

HFCL developed a 96-fiber Ultra Lightweight (ULW) aerial cable solution compatible with existing connectivity infrastructure and installation methods. This new high-density design exceeded the technical requirements of the legacy 48F solution, doubling the customer's network fiber capacity.

Results

The new HFCL 96F ULW aerial cable solution passed all customer-specified testing requirements, including a rigorous 16-day overhead installation test with 5 cycles of simulated storm loading. Over 2,000 km of 96F ULW cable have been provided to support the initial phase of deployment.

Challenge

One of the UK's largest network operators was tasked with increasing network fiber capacity to support the expansion of a nationwide broadband network. They needed a higher fiber count aerial cable solution that could both meet their robust safety and performance requirements, while cost-effectively increasing network capacity. The governing documents that outline these design and performance constraints place aerial cables into light, medium, and heavy strength categories. The "light" category of cables may be installed without inspection of the telephone poles, while larger, higher strength cables may only be installed after the poles have been inspected and repaired/replaced (if needed). This created a strong incentive for the customer to use cables in the light category for trunk and distribution applications. However, design and performance challenges associated with this cable category were found to be significant, especially considering the need for a solution with increased fiber density. One of the most challenging requirements was associated with cable loading. The new 96F ULW aerial cable design had to fall within a very tight loading window of ≥ 1300 N (292 lbf) and ≤ 2000 N (450 lbf), with the lower limit being defined as the requirement to support storm loading conditions and the upper limit defining the break load (such that the cable would break before pulling down a pole). This criteria would then need to be tested in a rigorous 16-day overhead installation test with 5 cycles of simulated storm loading.

Solution

HFCL developed a 96F ULW aerial cable solution that

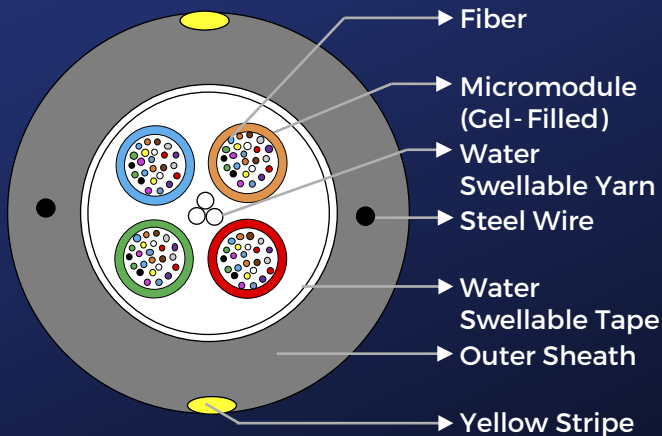
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Met all customer design/performance requirements

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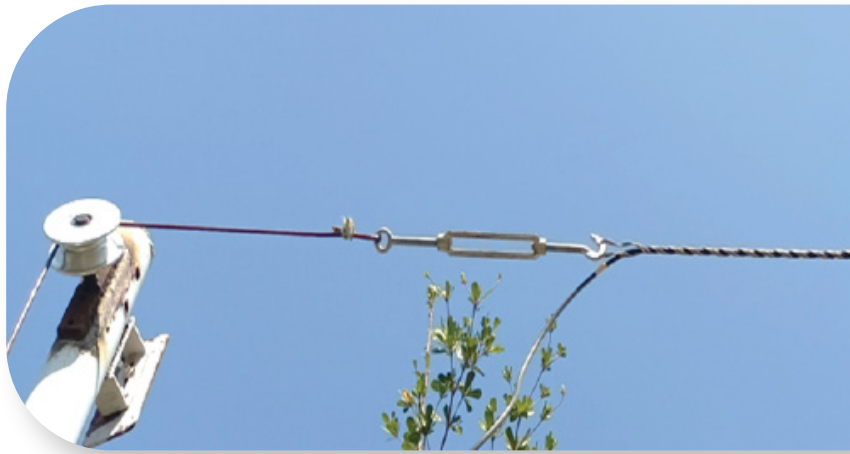
Doubled the fiber capacity as compared to the legacy offering, i.e. HFCL - 96F vs. Legacy - 48F.

This was achieved by packaging twenty-four 200µm fibers in each micromodule (to meet the fiber density requirements) and leveraging optimized braided steel wire (to comply with both break and storm load requirements).



Results

Not only did the new 96F ULW aerial cable design pass all applicable design and performance standards, the solution successfully met the stringent field requirements that were tested during a 16-day storm loading evaluation. This new aerial cable design has helped the customer to achieve a step-change in network capacity by doubling the fiber count of its aerial cables while maintaining the same cable diameter. Over 2,000 km of 96F ULW cable have been provided to support the customer's initial phase of deployment.



About HFCL

At HFCL, we are a trailblazing global technology company dedicated to connecting billions of people, devices, and systems. With a strong focus on innovation, we design, develop, and manufacture cutting-edge telecommunications equipment, fiber-optic cables, and other related electronics. Our commitment to technological advancement and quality has positioned us as a leading player in the industry. With a rich legacy and a global presence, we are driven by our passion to empower networks and revolutionize the way people communicate. By leveraging our expertise and innovative solutions, we enable seamless connectivity and enhanced reliability, shaping the future of digital and telecommunications.