

# Duct Cutting: MULETAPE® vs. Rope

## Burn Through: The Case for MULETAPE vs. Rope

Q: What is “burn through?”

A: When polyester rope is pulled through PVC or polyethylene innerduct, the friction generated by the rope rubbing against the conduit wall creates enough heat to actually “burn through” the conduit.

Q: Why should this matter to me?

A: Aside from damaging the conduit and creating opportunities for water penetration, the jagged edges of the burned conduit pose a real threat to the fiber optic cable you are installing.

Cable surging through the damaged conduit at an average rate of 100 ft. per minute will catch on the damaged areas of conduit, shredding the outer jacket. The excessive stress placed on the fragile optical fibers when you try to force the cable through, can cause micro-bending and actually change the shape of the cable core. As a result, the cable may fail prematurely, or simply not function at all.

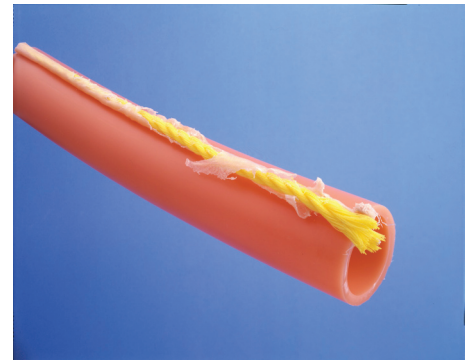
Q: How does NEPTCO know these things happen? After all, you can’t see what’s happening underground!

A: NEPTCO has gone to great lengths to test this theory by duplicating installation conditions in the lab and in the field. Our research engineers designed the Duct Cut Tester to evaluate the performance of various conduit materials and winch lines under typical installation conditions.

The results tabulated on the reverse side of this sheet are conclusive: **pre-lubricated MULETAPE out-performs polypropylene rope in every installation scenario.**

Q: Why does MULETAPE work so much better than rope?

A: MULETAPE is pre-lubricated, which helps reduce friction and the heat it generates, but MULETAPE’s flat profile is also important. A round rope will concentrate all heat and energy on the small area where the rope comes in contact with the innerduct. MULETAPE is flat, and therefore spreads this heat and energy across a wider area, reducing the chance of burn through.

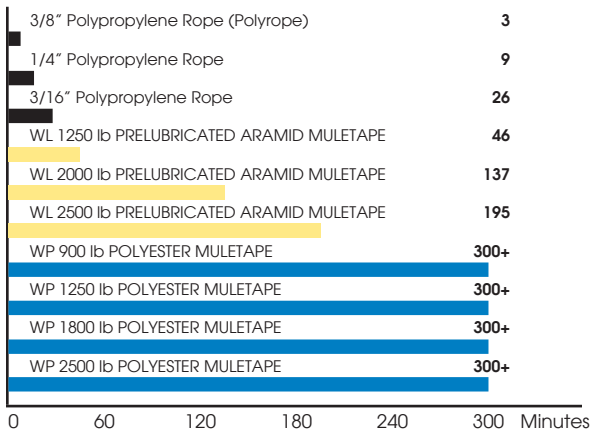


NEPTCO Duct Cut Tester

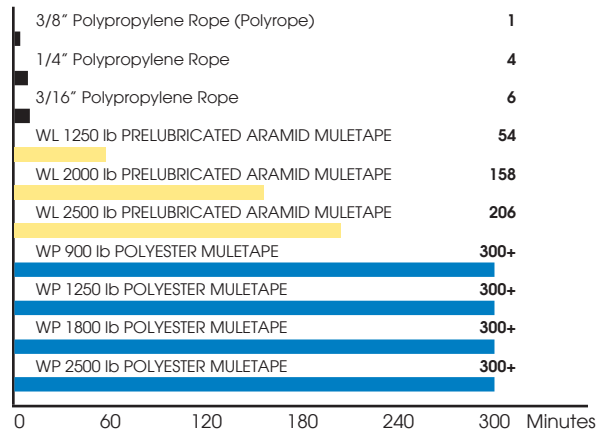
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The charts below indicate the time elapsed before conduit experiences damage due to burn through:

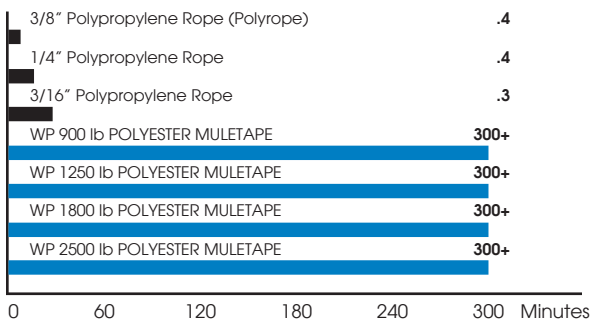
**Duct Cutting in Corrugated 1.5" ID HDPE Subduct**



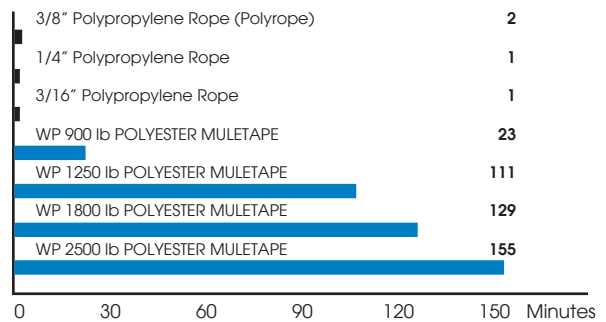
**Duct Cutting in Smooth Walled 1.5" ID HDPE Subduct**



**Duct Cutting in Corrugated 1.5" ID PVC Subduct**



**Duct Cutting in 2" Schedule 40 PVC 90° Subduct**



Q: Okay, I understand that burn through is a problem, but I'm still not convinced this is really happening in the field. Do you have any evidence that cable can actually be damaged in a real installation?

A: Absolutely. In 1999, NEPTCO recreated a typical installation scenario in an above-ground test. The results were just as we expected – the rope burned through the conduit in seconds, while the MULETAPE caused no damage. To request a video of this experiment in CD or VHS format, please contact your NEPTCO outside plant representative.



**WARNING**

**MULETAPE®: For cable installation only. Do not strap, bind or lift items with this product.**

