



## Success Brief

Co-engineering Fiber  
Optic Connector Assembly

Telecommunications  
Market

“Domaille’s team  
came up with  
brilliant design  
suggestions that  
improved both cost  
and performance”

Paul D.  
Sr. Process Engineer  
Corning

# Co-Engineering Process

The Corning Cable Systems group benefits from Domaille’s Engineering to Manufacturing (E2M) process to meet cost and performance targets.

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<b>Customer</b>	▪ Corning Cable Systems, part of the best-in-class optical fiber division
<b>Product</b>	▪ Globally distributed field installation kits for fiber optical connectors
<b>Challenge</b>	▪ Design easy to use connector assembly tools which will be cost competitive in a global market
<b>Results</b>	▪ Assembly tool cleaves, splices, installs connector and tests in less than 45 seconds while maintaining cost targets
<b>Impact</b>	▪ Initial sales are significantly exceeding original market forecast
<b>Next Step</b>	▪ Corning plans on conducting ROI study on redesign of other existing product lines

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**Corning Installation  
Tool Assembly Kit**



**Corning MTP Tool  
Assembly Kit**

### Spotlight: Co-Engineering Process

- Started early in design process
- Were able to change materials and coatings to meet cost and performance objectives
- Developed tolerances to ensure long lasting functionality in the most remote and rugged locations.
- Special features to ensure seamless assembly process.
- Dock to Stock

## Challenge

Corning Cable Systems designs and globally distributes many different field installation kits for fiber optic connectors. These assemblies allow field technicians to perform exacting operations like cleaving, splicing and connector installation in remote, rugged locations.

For their latest product line, Corning wanted to design an installation tool that would be cost competitive and perform all the required operations, including testing, in less than one minute. Domaille Engineering got involved after the initial concept was completed by Corning. Our role was to help with manufacturability of the concept. We reviewed materials, number of components, tolerance schemes, corrosion resistance options and quality requirements.

## Solution

Working directly with the Corning process engineering team, we established a three level bill of materials that included 31 total components (18 manufactured and 13 purchased). In order for the fiber optics to align correctly during the splicing and connector assembly process, the moving components needed to be held to a  $\pm .0001$  tolerance.

In order for this alignment to last in the field, the parts are heat treated (risk mitigation for wear and handling damage), then coated for corrosion resistance. Corning placed a very high value on the visual appearance of the tools, so the team defined and developed visual acceptance criteria for the coatings.

Components were designed so that they were standardized (could be assembled as either right hand or left hand) and were designed with integral features that only allowed the components to be assembled correctly. This significantly reduced the assembly time and errors.

The Corning/Domaille team designed a quick check quality fixture to ensure that all shipped assemblies functioned correctly before they left Domaille's manufacturing facility. The parts are shipped on a Dock to Stock basis to eliminate extra costs.



Find a business solution that is right for your company.  
Contact your Domaille Engineering representative at 507-281-0275  
or visit our website: [www.DomailleEngineering.com](http://www.DomailleEngineering.com).