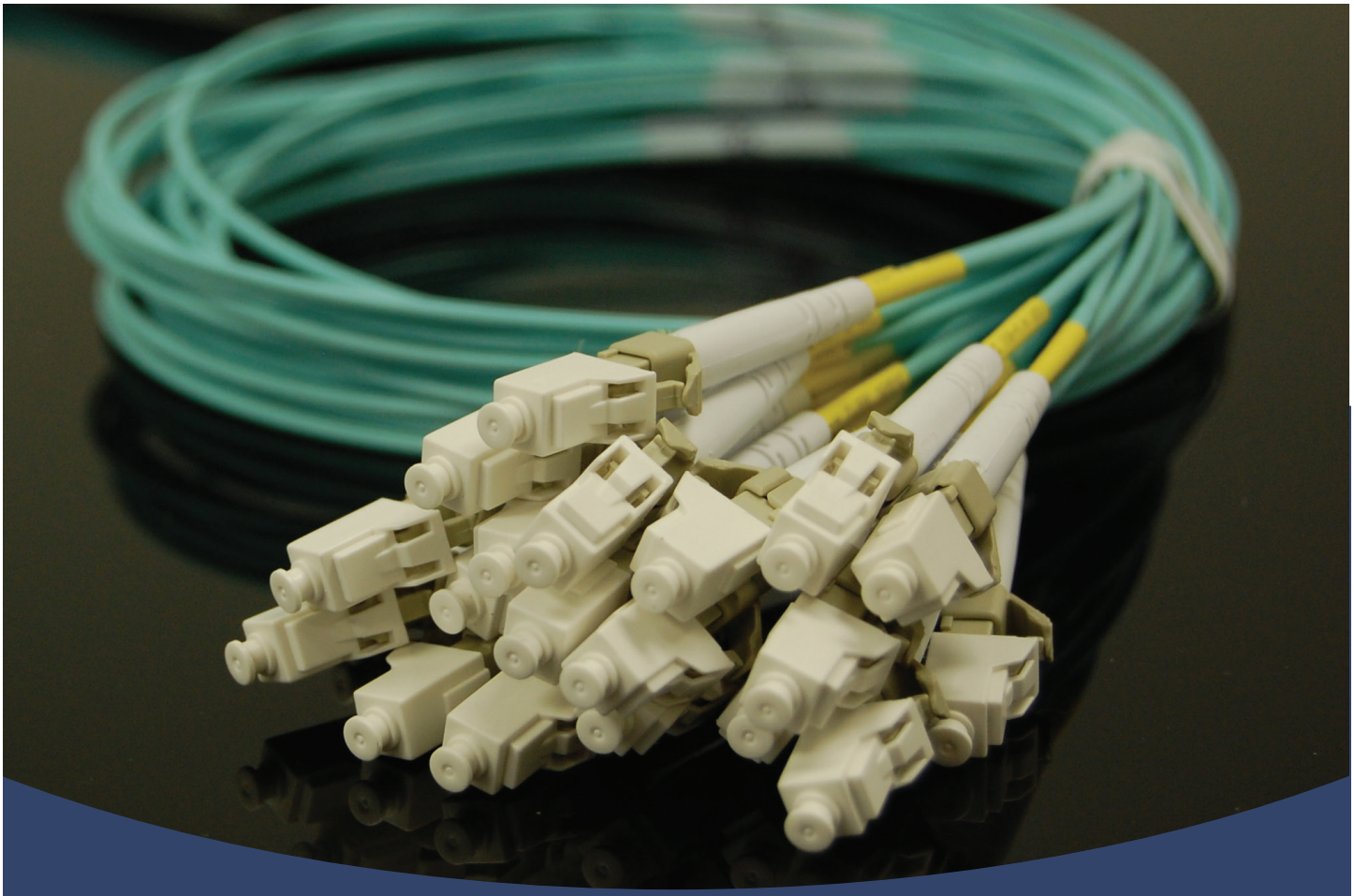


MEGLADON®

MANUFACTURING GROUP, LTD

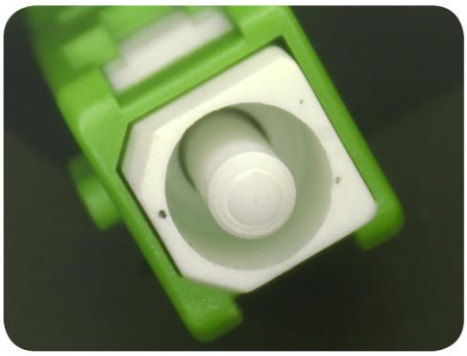
A TyRex Technology Family Company

HLC® Manufacturing Process

Technical Paper

Megladon Manufacturing Group, Ltd. · (512) 491-0006 · megladonmfg.com

MEGLADON®
MANUFACTURING GROUP, LTD
A TyRex Technology Family Company



Patented HLC® Manufacturing Process

HISTORY

The HLC (Hardened Lens Contact) laser process was created in 2001 in collaboration with Dr. Robert Mays and STG 4Fronts, Megladon's technology incubator. The short term goal was to create a termination process that yielded interconnect products with tight tolerances in both loss and geometry. The long term goal was to develop a "virtual interconnect" whose insertion loss and optical return loss were almost nonexistent.

In late 2001, the laser process was moved into application engineering and a short final polish process was established that accomplished the first goal. After a period of testing, mass production began. Today, the HLC process is protected by 4 patents and we continue to find additional applications for this versatile technology. Megladon HLC products are in use worldwide and utilized by some of the most discerning customers in all facets of communications. We continue to improve the process in the quest for the "virtual interconnect".

FEATURES

Tempered Mating Surface

As the heat from the laser traverses the entire mating surface (not a laser ablation or cleaving process), a rapid reflow occurs that produces a thin layer of hardened material (similar to a tempered windshield). This material is harder than most of the airborne particles that often scratch fiber optic interconnects. The scratch resistant surface decreases the likelihood of surface scratches. Scratches in the surface (even on the ferrule) house charged particles that will attract contaminants of an opposite charge and cause them to bond to the surface. Contaminants will eventually migrate to the core causing signal loss.

Integrated Lens

When the laser interacts with the fiber optic glass a rapid reflow occurs. During the reflow, the glass is hardened at the surface and a lens is formed from the original glass. The integrated lens produces an increase in coupling efficiency and is primarily responsible for the decrease in insertion loss and optical return loss.

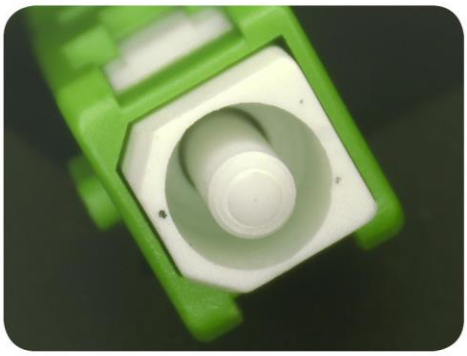
Passivates Mating Surface

The rapid reflow also passivates the mating surface. The glass and cladding contain dopants and contaminants that will leach out to the mating surface over time, even while the connector is in service. The heat treatment "seals" the surface to prevent leaching.

Increase in Surface Smoothness

An increase in mating surface smoothness (entire surface) occurs during the reflow process as the porosity decreases. This decreases the friction that occurs during dry wipe cleaning and reduces the electrostatic field that has been shown to attract contaminants.

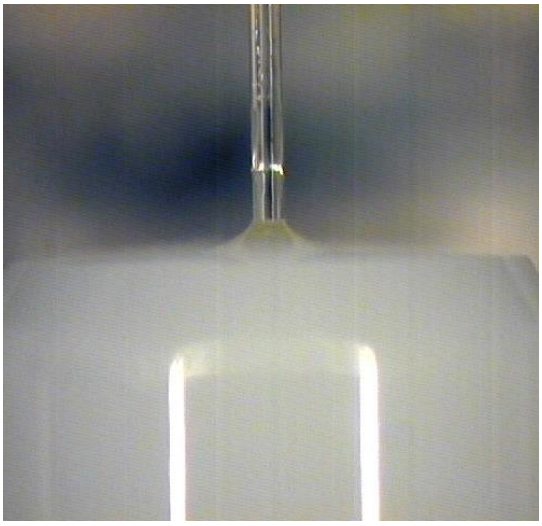
MEGLADON®
MANUFACTURING GROUP, LTD
A TyRex Technology Family Company



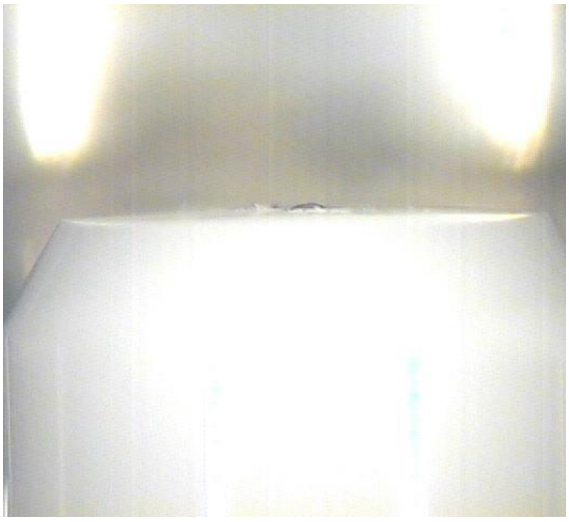
BENEFITS

Often customers appreciate the features of the HLC interconnect but are more interested in real world benefits. Megladon's HLC products are highly repeatable, reliable and have the only tempered mating surface in the industry. Other benefits include:

- Compatible with all existing connectors and will exhibit the same increased performance
- Have been shown to withstand more than 1000 mates
- Scratch and contaminant resistant
- Film and residue resistant
- Easy to install
- Minimizes installation time saving time and money
- Minimizes intermittent network failures
- Minimizes back charge clause expenses for carrier based networks
- Increases customer satisfaction and retention



BEFORE



AFTER

12317 Technology Blvd., Ste. 100, Austin, TX 78727 · (512) 491-0006 · megladonmfg.com