DURABLE FIBER OPTIC MATING SURFACE WITH INTEGRATED LENS

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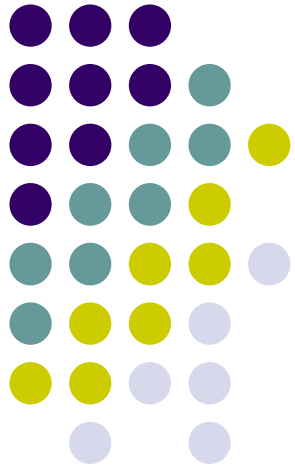


Introduction

- Challenges are encountered daily during deployment and maintenance of fiber optic interconnects.
- These challenges include but are not limited to:
  - Mating surface scratching
  - Dust and other airborne contaminants
  - Leaching of contaminants to the mating surface
  - Films and residues
  - Alignment issues
  - Geometry issues
- All mentioned can lead to increased insertion loss, return loss, intermittent failures and performance degradation.
- Repeatability and reliability is compromised.

Hardened Lens Contact (HLC®) Termination Process

- The HLC process uses a CO2 laser to traverse the entire mating surface.
- The mating surface is subjected to a rapid melt and reflow.
- There are two primary benefits obtained from using this process:
  - Overall durability of the entire mating surface
  - Enhanced performance

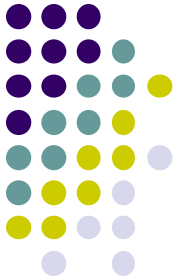
Durability of Entire Mating Surface

Tempered Mating Surface

The mating surface is subjected to a rapid melt and reflow.

- Hardness of mating surface increases
- Smoothness of mating surface increases
- Passivates the surface (reduce dangling bonds)

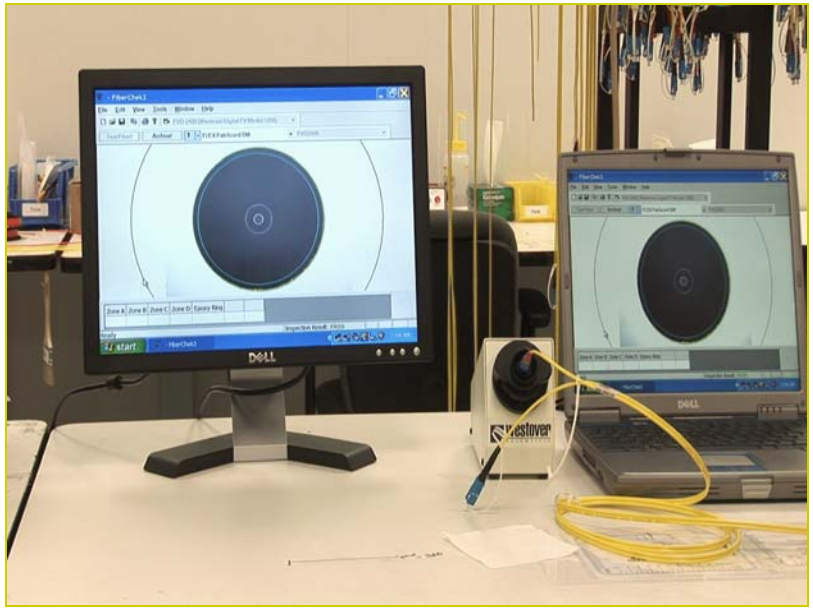
Increased Hardness



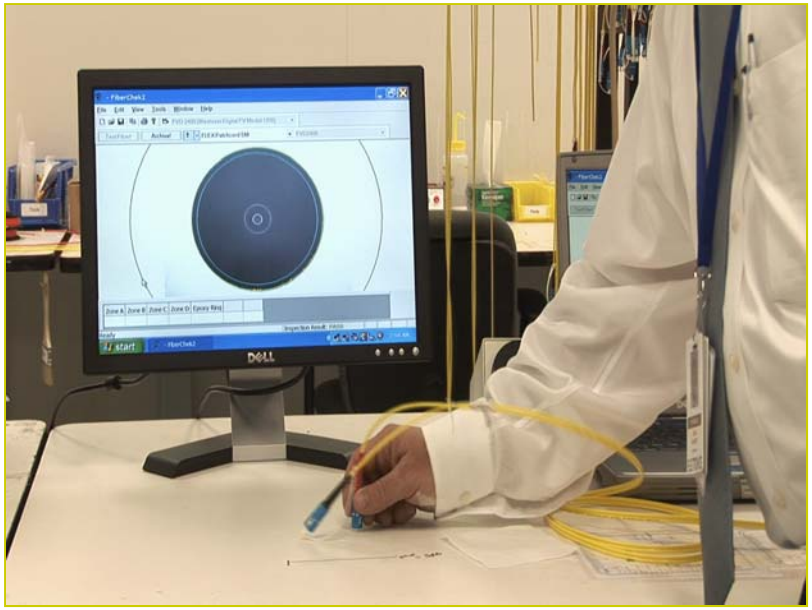
- Tempering process.
- Tests conducted by Micro Photonics with diamond micro-tip stylus demonstrated increased hardness of fiber and ferrule surface over traditional process.
- Result is a surface that is harder than the airborne particles that typically scratch.
- Benefit is resistance to scratch and dig.

Demonstration:

SCRATCHGUARD® For Mission Critical Applications



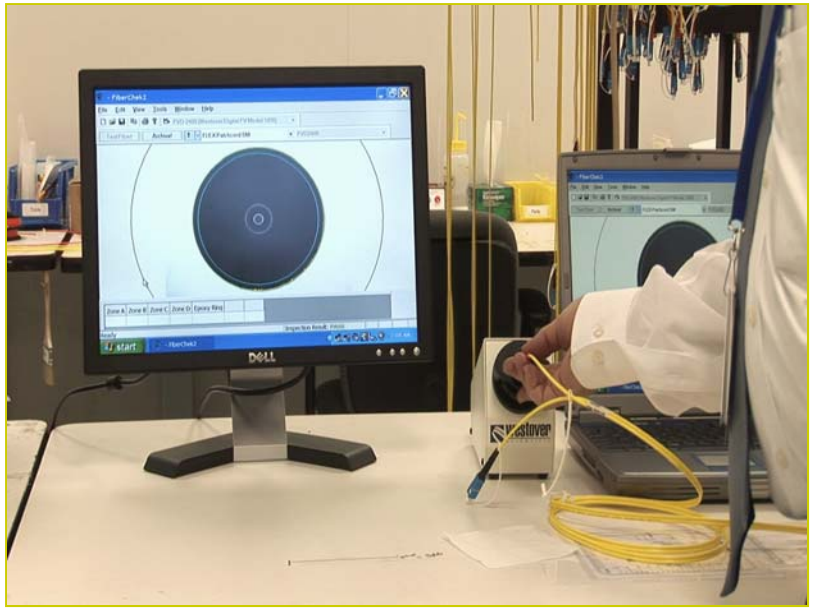
> Polished connector free of defects



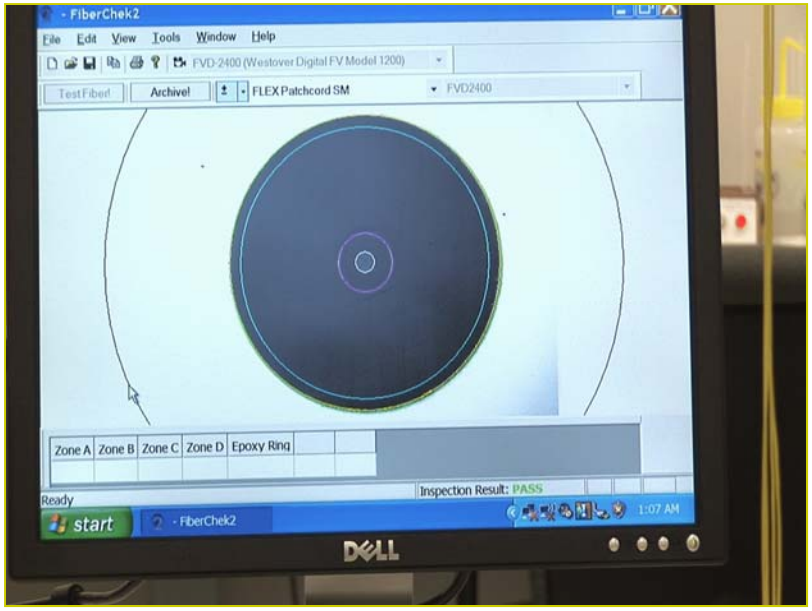
> Scratch the connector on the table surface

Demonstration:

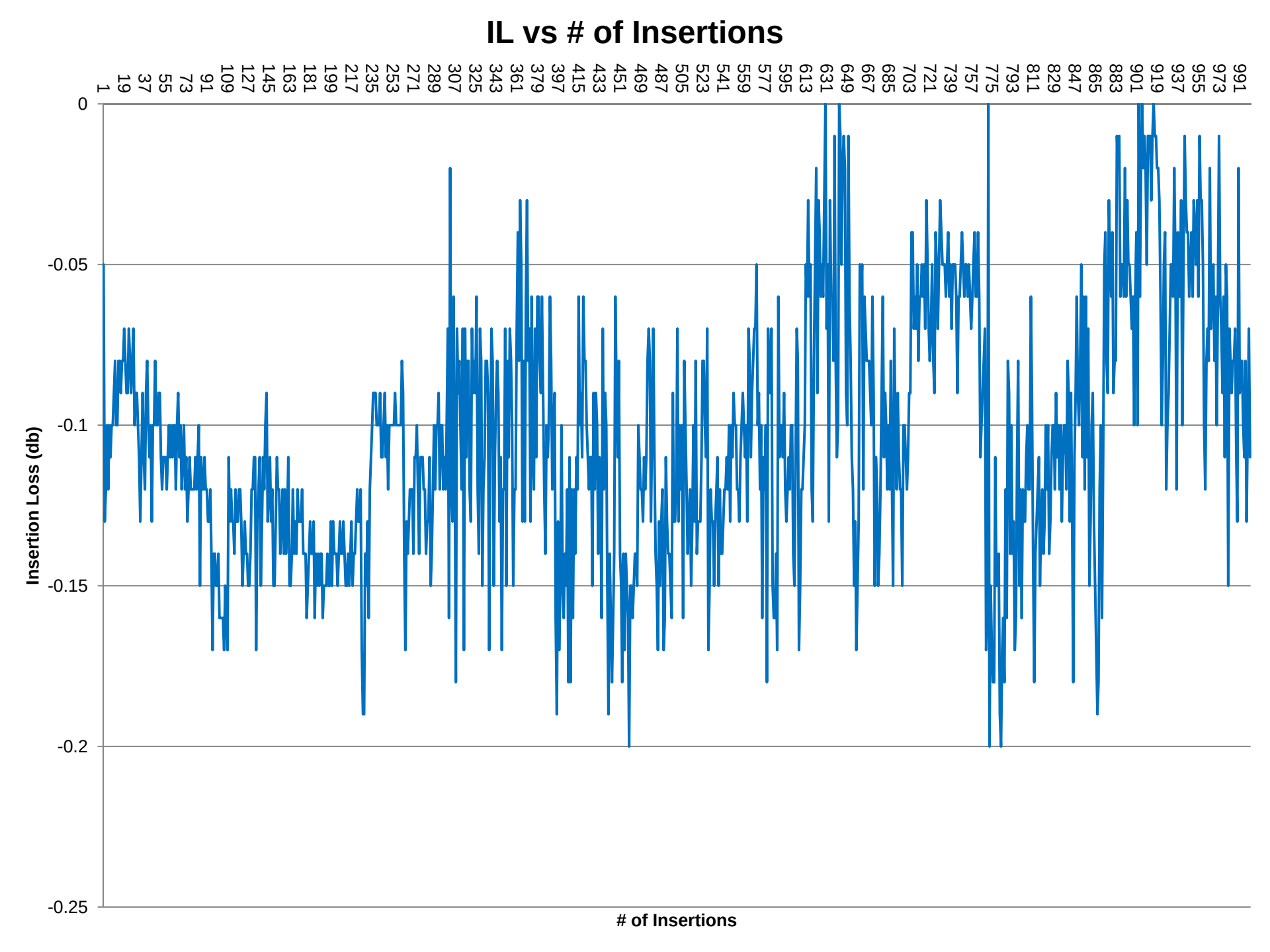
SCRATCHGUARD® For Mission Critical Applications



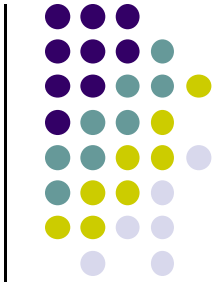
> Testing connector on FiberChek II



> Monitor close up view showing no scratches


IL vs # of Insertions
Insertion Loss (db)
0
-0.05
-0.1
-0.15
-0.2
-0.25
1
19
37
55
73
91
109
127
145
163
181
199
217
235
253
271
289
307
325
343
361
379
397
415
433
451
469
487
505
523
541
559
577
595
613
631
649
667
685
703
721
739
757
775
793
811
829
847
865
883
901
919
937
955
973
991
# of Insertions

Increased Smoothness



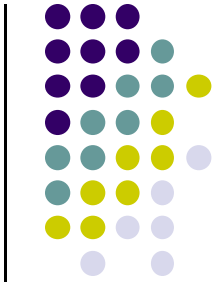
•Porosity is decreased.

•Surface smoothness is typically increased 3-6 times over assemblies manufactured using a standard process.

•Surface smoothness has been shown to generate less ESD which is a major contributor to contamination.

•Result is less likely to attract airborne particles which can migrate to the center of the core.

Passivates Surface



- This is key.
- Use of ion etching of the surface shows a reduction of dangling oxygen atoms by more than 10 times.
- Dangling oxygen atoms will attract oppositely charged particles.
- Result is less likely to attract airborne particles which can migrate to the center of the core.

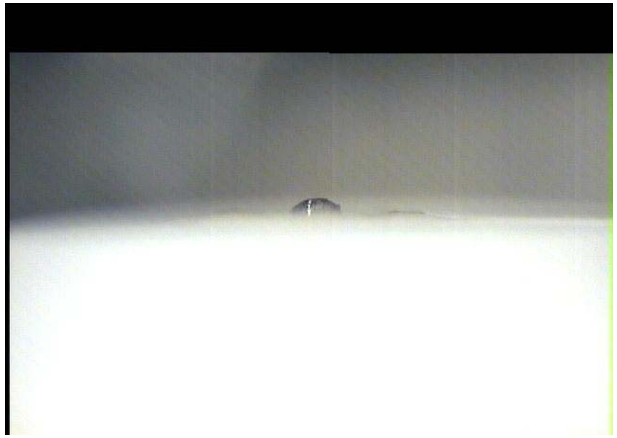
Enhanced Performance

Thermal shock wave is introduced during laser process.

Slight change in index of refraction (focus effect).

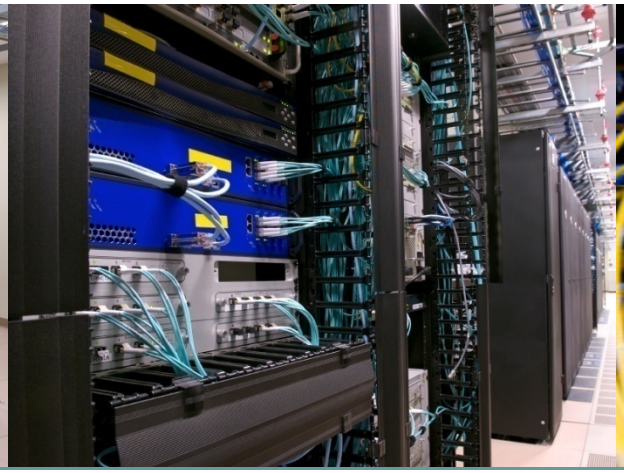
Integrated lens is created.

Improved coupling efficiency.

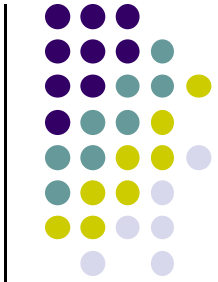


HLC Features

- Tempered mating surface
- Scratch Resistant
- Easy cleaning
- Dust resistant
- Extended life span
- Rated up to 1500 matings
- Compatible with all existing connectors
- 200% improvement in Optical Return Loss when compared to industry specification


More Information



- Additional information can be requested at scratchguard@megladonmfg.com

- *Thank you for your time and interest in Megladon's products and services.*