

# ALPHALINER®

## ADVANTAGES OF ALPHALINER® vs FELT CIPP

|                                | Felt CIPP Cured<br>Using Steam or Water                        | Alphaliner®<br>UV CIPP                           |  |
|--------------------------------|--|--|--|
| <b>INSTALLATION PROPERTIES</b> | Controllable Installation<br>(Able to start & stop)            | No stopping once exothermal begins               | Yes  |
|                                | Shrinkage  | Moderate (depending on resin quality)            | Minimal (Lowest resin shrinkage of all installation methods)     |
|                                | Resin Slugs in Lateral   | Yes - Inversion                                  | NONE   |
|                                | Curing Medium  | Hot Water or Steam                               | Ultra Violet Light   |
|                                | Curing Documentation   | Temperature recorded at accessible sections only | Infrared Sensors Record Entire Process                           |
|                                | Resin Migration/Loss/Washout                                   | Yes  | No   |
|                                | Host Pipe Required for Liner Integrity                         | Yes  | No   |
| <b>ENVIRONMENTAL</b>           | Energy Usage   | Medium   | Low  |
|                                | Water Usage/Requirements                                       | Moderate to Heavy                                | Minimal  |
|                                | Installation Noise   | Medium to High                                   | Low  |
|                                | Post Curing Discharge  | Styrene laced water or condensate                | None   |
|                                | Environmental Footprint  | Large  | Minimal (less equipment required)                                |
| <b>STRUCTURAL PROPERTIES</b>   | Initial Flexural E-modulus*                                    | 250,000 - 450,000 psi                            | 1,660,000 psi Alphaliner® 500<br>3,000,000 psi Alphaliner® 1800H |
|                                | Adjusted Long Term Flexural Modulus*<br>(50 Year Life Results) | 125,000 - 225,000 psi                            | 1,210,000 psi Alphaliner® 500<br>2,550,000 psi Alphaliner® 1800H |
|                                | Initial Flexural Strength*                                     | 4,500 - 5,000 psi                                | 50,000 psi Alphaliner® 500<br>68,000 psi Alphaliner® 1800H       |
|                                | Liner Reinforcement  | None   | ECR Fiberglass   |
|                                | Chemical Resistance  | Excellent  | Excellent  |
|                                | Porosity of Cured Liner Pipe Wall                              | Not tight  | Tight  |
|                                | Retention Factor   | 50%  | 73% for Alphaliner® 500<br>85% for Alphaliner® 1800H             |

\*Initial E modulus test using curved specimens requires a pass value that is 85% or higher to compensate for the variance caused by lab testing devices (ASTM F2019-20). Reline America uses an additional 5% safety factor by lowering third-party test reports 5% prior to applying design criteria.

**RELINEAMERICA®**

*For more information contact us at:*

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|--|-------------------------------------|--|---|
| <b>LINER &amp; GENERAL INFORMATION</b> | Shelf Life Before Installation      | 2 to 3 weeks REFRIGERATED                        | 6 months minimum - No refrigeration             |
|  | Pre-Liner                           | Not routinely used                               | Yes - Fully encapsulated                        |
|  | Liner Seam                          | Stitched or bonded                               | None - Spirally Wound                           |
|  | Manufacturing/Quality Management    | By contractor at facility or in the field        | ISO Certified 9001:2015 QMS                     |
|  | Tube Impregnation                   | Resin distributed into tube at discrete points   | Raw material impregnated use                    |
|  | Resin Tube Fabrication              | Vacuum impregnated AFTER construction            | Tube manufactured from impregnated raw material |
|  | Inner Film                          | Left in place                                    | Removed after installation                      |
|  | Outer Film                          | Inversion Installations - Not typically provided | Yes   |
|  | Tube Material                       | Felt/Polyester                                   | Fiberglass                                      |
|  | 8" Pipe Typical Liner Thickness     | 6 mm   | 3.5 mm  |
|  | Pipe Shapes                         | All standard pipe shapes                         | All standard pipe shapes                        |
|  | Diameter Ranges                     | 4" to 124"                                       | 6" to 72"                                       |
|  | ASTM Installation Standard          | F1216, F1743                                     | F2019-20  |
|  | <b>INSTALLATION &amp; EQUIPMENT</b> | Water Jet Cleaner                                | Yes   |
| CCTV/Cutter equipment                  |                                     | Yes  | Yes   |
| Installation Presssure Unit            |                                     | Yes  | Yes   |
| Curing Truck                           |                                     | No   | Yes   |
| Refrigerator Truck                     |                                     | Yes  | No  |
| Boiler Truck                           |                                     | Yes  | No  |
| Portable Equipment                     |                                     | Yes  | Yes   |
| Installer Qualifications               |                                     | Varies with installer                            | Installer certification required                |
| Installation                           |                                     | Inverted or Pull in                              | Pull in   |
| Liner Inflation                        |                                     | Water or Air                                     | Air   |
| Effect of Cold Spots in Soil           |                                     | Additional cure time required                    | None  |
| Liner Inspection BEFORE Curing         |                                     | None   | CCTV Inspected                                  |