



## PRODUCT DATA SHEET

# HammerHead Lateral CIPP Solutions

## HammerHead® Lateral CIPP Solutions

HammerHead Lateral CIPP Solutions are cured-in-place pipe linings used to rehabilitate lateral sewers and other 4–12-inch diameter, non-pressure pipelines without excavation. Rehabilitation with HammerHead CIPP eliminates infiltration, protects against future corrosion, and provides a structural repair to deteriorated or damaged existing pipelines as a less disruptive alternative to traditional dig and replace. HammerHead's lateral CIPP rehabilitates pipe by inverting a resin-impregnated tube into an existing pipeline and expanding it against the interior of the existing pipe during cure, as described in ASTM F1216. The finished CIPP is tight-fitting and continuous over its installed length with a smooth transition from the rehabilitation to the existing pipe.

### Applications for Use

HammerHead Lateral CIPP Solutions are certified by NSF International for compliance with NSF Standard 14, ASTM F1216, the International Plumbing Code, and the Uniform Plumbing Code to provide a watertight, structural repair to existing pipelines, including storm and sanitary sewers, drainage, vents, and other piping systems. HammerHead CIPP products are resistant to municipal sewage, acids, and alkalis commonly found in drains, sewers, and commercial. These solutions may be used to rehabilitate existing piping in straight sections, bends, offset joints, and pipe diameter or material transitions.



DWV SEWER I.P. Code U.P. Code



International Plumbing Code



Uniform Plumbing Code

### Technical Data

HammerHead Lateral CIPP Solutions are an engineered composite consisting of a specialized textile tube and a proprietary thermoset resin. The system is designed for installation in existing pipelines with damp or moisture filled surfaces. These CIPP solutions rely on the circulation of hot water, controlled steam, or conditions within the ambient pipeline environment for cure. Resin system and cure method are selected based on installation conditions and the desired working and cure times. The design of the CIPP takes loads into consideration including hydrostatic, soil, and live loads in accordance with ASTM F1216, Appendix X1. Corrosion and heat resistance properties of the installed CIPP are optimal for municipal and light industrial application environments.

### Structural Properties

HammerHead Lateral CIPP Solutions provide a structural repair with a watertight, frictional fit throughout the length of the rehabilitated pipe. CIPP rehabilitation can be made in existing pipe of circular or oval cross section constructed of concrete, vitrified clay, PVC, asbestos cement, cast iron, ductile iron, and other constructions where the structural stability of the CIPP is not dependent upon its adhesion to the host pipe. Structural stability of the CIPP is achieved through compression during



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cure as the CIPP is expanded tightly against the walls of the existing pipe. At the same time the resin from the CIPP is compressed into joints, irregularities, and defects in the wall of the existing pipe effectively anchoring the CIPP in-place and creating a watertight seal. The structural properties in the following table are met or exceeded when HammerHead installation guidelines are followed.

Property	Test Method	ASTM F1216 (minimum)
Flexural Modulus	ASTM D790	250,000 psi
Flexural Strength	ASTM D790	4,500 psi

\*Contact HammerHead Trenchless for long-term structural properties.

### HammerHead Resin Systems

HammerHead heat- and ambient-cure CIPP resin systems are two-part, 100% solids, styrene-free epoxies offering superior mechanical properties, chemical resistance, and adhesion to pipe materials, even under humid and wet conditions typical for buried pipelines. All heat-cure hardeners utilize the HH Resin Base.

As a component of HammerHead CIPP systems, these resins are specifically formulated with excellent wet-out capability, low-odor, and no VOCs, for pipeline rehabilitation.

<i>Material Data – Heat Cure</i>	HH Resin Base	HH Winter 30	HH Standard 60	HH Summer 90
<i>Mix ratio, parts by weight</i>	4	1	1	1
<i>Weight per gallon, lbs</i>	9.49	8.43	8.44	8.44
<i>Color</i>	Yellow	Blue	Blue	Blue

<i>Material Data – Ambient Cure</i>	HH Ambient Epoxy Resin Part A	HH Ambient Hardener Standard
<i>Mix ratio, parts by volume</i>	2	1
<i>Color</i>	Blue	Yellow





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### HammerHead Tube

HammerHead offers several options for tube that are selected based upon existing pipeline configuration, cure method, and conditions affecting installation such as length, offset or diameter transitions.

	HH Scrim Liner	HH Flex Liner	HH Super Flex Liner	HH Brawoliner	HH Transitional Scrim Liner
<b>Thickness, mm</b>	3, 4.5	2, 4.5	2, 4.5	3, 4	3
<b>Diameter Range, in.</b>	3 to 12	2 to 8	3 to 8	2 to 8	4" or 6"
<b>Material Type</b>	PE felt with scrim and PU coating	PE felt with PU coating	PE felt with PU coating	Seamless woven PET with PU foil	PE felt with PU coating
<b>Bends</b>	45 deg	90 deg	90 deg	90 deg	45 deg
<b>Pipe Transition</b>	NA	Yes	NA	Yes	Yes
<b>Cure Method(s)</b>	Ambient, hot water	Ambient, hot water	Ambient, hot water	Ambient, hot water	Ambient, hot water

### HammerHead Calibration Tube

HammerHead calibration tube is used to expand and hold the resin-impregnated tube (liner) tightly against the existing pipe wall during cure.

	Light Duty	Heavy Duty
<b>Diameter Range, in.</b>	2 to 6	4 to 12
<b>Material Type</b>	Polyester fabric with PVC coating	Polyester fabric with PVC coating
<b>Seam</b>	HF Welded Overlap	Stitched and taped
<b>Cure Method</b>	Ambient	Hot Water
<b>Installation pressure</b>	5 to 7 psi – may need additional pressure to invert around bends	7 to 10 psi – may need additional pressure to invert around bends

### Working and Cure Times

**Ambient temperature:** Temperature of work area where resin system is mixed, and the tube is saturated and loaded into the inversion drum.

**Working time:** Time from the start of mixing resin to the completion of inversion of the liner into the existing pipe.

**Cure time:** Time from the start of circulation of selected heat medium to the time of substantial completion of cure of the CIPP. Listed cure times are based on temperature of the air or heat medium circulating within the pipe. Cure times shown for Ambient Cure System are the time from completion of installation until the resin has set allowing for return to service. Cure may continue to take place for several days while the CIPP is in service.





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**IMPORTANT:** Working and cure times are greatly affected by temperature. Warmer temperatures result in less working and cure time. Colder temperatures increase working and cure times. Resin components and inversion drum should be conditioned 24 hours prior to use within a 72-75°F (22-24°C) temperature range for optimum control during installation.

<i>HH Resin Base</i>	77°F (25°C)	158°F (70°C)	176°F (80°C)	194°F (60°C)
	Working	Cure	Cure	Cure
<i>HH Winter 30</i>	15	70	40	30
<i>HH Standard 60</i>	35	130	60	40
<i>HH Summer 90</i>	55	140	90	60

<i>Time, minutes</i>	77°F (25°C)	50°F (10°C)	77°F (25°C)
	Working Time	Cure Time	Cure Time
<i>HH Ambient Cure</i>	25	240	120

### Shelf Life and Storage

**Lateral Epoxy Resin/Hardener:** One year when stored in original sealed packaging at 65-80°F (18-27°C) and less than 65% relative humidity.

**Tube:** One year when stored protected from light at 40-80°F (5-27°C) and less than 65% relative humidity.

### Safety

Refer to the Safety Data Sheets for these products for safety and health information prior to use. Follow all notices on the Safety Data Sheets (SDS). If you do not understand or cannot adhere to the guidelines and procedures for handling and use of these products in strict accordance with the SDS, do not use these products. Contact HammerHead at 800-331-6653 for a copy of the SDS.

The information contained herein is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and no warranty of any kind is made with respect thereto. Always read, understand, and comply with hazard warnings described in the products' Safety Data Sheet(s) before use.

