

## BURIED PIPE & CULVERT REPAIR PRODUCTS:

# StrongPIPE® V-Wrap™ FRP Composite Systems



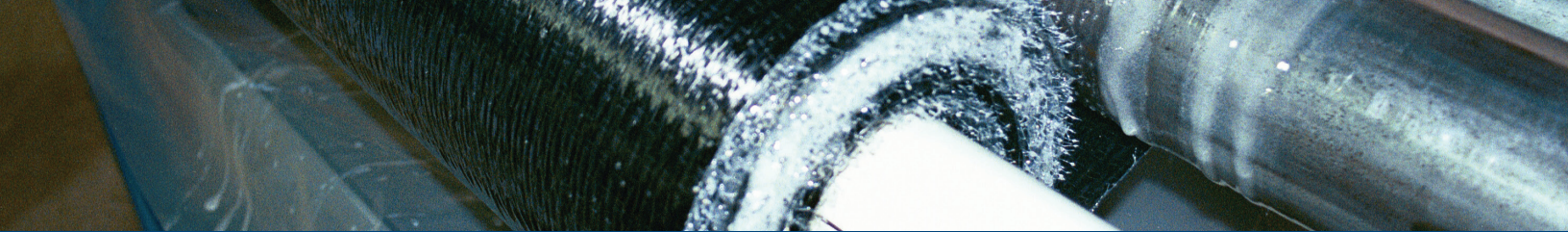
*StrongPIPE® V-Wrap™ FRP Composites are structural strengthening systems for the restoration and renewal of pressure pipe. These systems have been tested and meet or exceed durability requirements necessary to provide the desired service life for pipeline structures.*

StrongPIPE® V-Wrap™ FRP Composites utilize durable, high-strength carbon and glass fibers fully saturated in a two-part 100% solids epoxy matrix. These thin, low-profile laminates are bonded to the interior or exterior of pipelines forming a composite lining with the existing host pipe structure. Applied both longitudinally and circumferentially, the V-Wrap™ system is layered to meet specific design requirements.

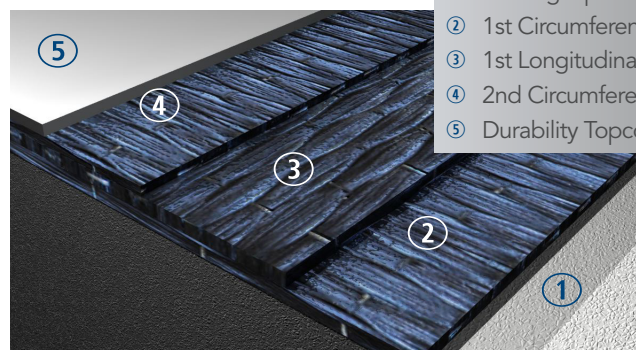


### StrongPIPE® V-Wrap™ Features:

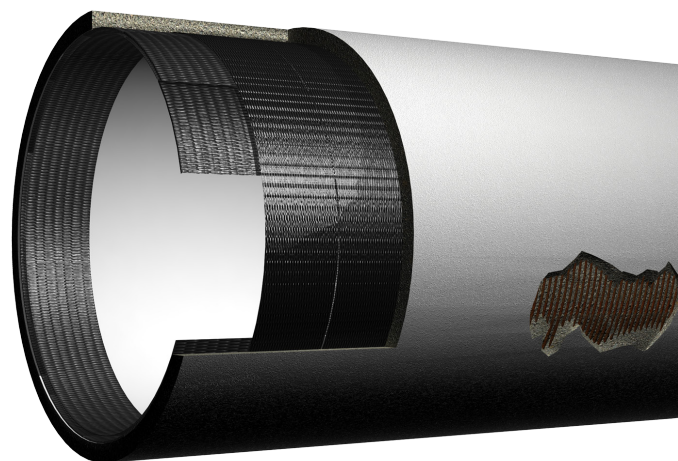
- Fully structural repair system – custom designed to address all internal pressure and external loads
- Low profile system (typically 3/8-inch to 1-inch)
- Long-term lifecycle extension of pipeline assets
- Segmental repairs or extended reaches of pipe, fits straight and curved pipe sections
- Restores full functional capacity of distressed, degraded or damaged pipelines
- Upgrades the structural capacity of an existing pipe allowing increased operating pressure
- Maintains water tightness of pipe under changing conditions of original pipe
- ICC-ES approved – meeting or exceeding industry standards for long-term durability
- No excavation needed – access through standard manholes
- Minimal downtime and impact to operations



### Representative design sample:



- ① Existing Pipe
- ② 1st Circumferential FRP Ply
- ③ 1st Longitudinal FRP Ply
- ④ 2nd Circumferential FRP Ply
- ⑤ Durability Topcoat



### StrongPIPE® V-Wrap™ Cured Laminate Design Values

V-Wrap™ Fabric	EG50	EG50B	C200H	C400H	C200HM	C400HM
Strength per Unit Width	2,824 lbs/in. (494 N/mm)	1,267 lbs/in. 220 N/mm	6,000 lbs/in. (1,050 N/mm)	12,000 lbs/in. (2,100 N/mm)	6,200 lbs/in. (1,090 N/mm)	12,400 lbs/in. (2,170 N/mm)
Ultimate Tensile Strength	70.6 ksi (487 MPa)	74.5 ksi (514 MPa)	150 ksi (1,034 MPa)	150 ksi (1,034 MPa)	155 ksi (1,068 MPa)	155 ksi (1,068 MPa)
Modulus of Elasticity	3,870 ksi (26,680 MPa)	4,600 ksi (31,700 MPa)	10,700 ksi (73,770 MPa)	10,700 ksi (73,770 MPa)	14,000 ksi (96,527 MPa)	14,000 ksi (96,527MPa)
Elongation at Break	1.80%	1.60%	1.40%	1.4%	1.10%	1.10%
Nominal Ply Thickness	0.04 in. (1.02 mm)	0.034 in. (0.864 mm)	0.04 in. (1.02 mm)	0.08 in. (2.03 mm)	0.04 in. (1.02 mm)	0.08 in. (2.03 mm)

Properties provided are for above-listed fabrics saturated with V-Wrap™ 770 Epoxy.

Visit [www.structuraltechnologies.com](http://www.structuraltechnologies.com) for additional product technical data and updates.