



# CARBONTECH

## REVOWRAP 185

Our comprehensive global product lines offer suitable solutions on new construction and maintenance projects for tough and demanding environments.

**Our reputable products are tested, validated, field proven and backed by a team of global professionals.**

# REVOWRAP 185

**-50°C TO 200 °C - YIELDING AMAZING PRESSURE CAPABILITIES**

## » PRODUCT OVERVIEW

Revowrap is an engineered composite solution used to restore damaged critical assets back to the original design specification of the equipment. Each repair is engineered using ASME PCC2 or ISO TS 24817 engineering codes for High risk non-metallic repairs. Carbontech engineers have the technology to perform FEA (Finite Element Analysis) on both the damaged piping systems and the Revowrap composite repair system. Revowrap provides re-enforcement of the piping in both the axial and hoop directions, and delivers uniform loading throughout the repair. The "Revowrap185®" composite systems are engineered to operate in working temperatures from -50°C to 200°C. Our composite systems can be applied by hand lamination or by infusion methods and may be applied to live piping systems without shutting down for the repair. Revowrap may be applied to any pipe size, most substrates and almost any piping configuration including tanks, vessels, flanges, and other compromised structural assets.

## PRODUCT PERFORMANCE INDICATORS

|                                         |                                                                                                   |
|-----------------------------------------|---------------------------------------------------------------------------------------------------|
| ASME PCC 2 Compliance                   | Fully Compliant                                                                                   |
| ISO TS 24817 Compliance                 | Fully Compliant                                                                                   |
| Certification                           | TUV & ABS                                                                                         |
| Minimum Application Temperature         | Please contact Carbontech Composite Systems' Engineering department for project-specific guidance |
| Maximum Application Temperature         | Please contact Carbontech Composite Systems' Engineering department for project-specific guidance |
| Minimum Allowable Operating Temperature | -50°C                                                                                             |
| Maximum Allowable Operating Temperature | 200°C                                                                                             |
| Maximum Allowable Operating Pressure    | Design Specific                                                                                   |
| Shelf Life                              | 2 Years - Extendable                                                                              |
| Cure Time                               | Refer to Carbontech Engineering for specific cure regimes                                         |
| Minimum Pipe Diameter                   | No Limitations                                                                                    |
| Maximum Pipe Diameter                   | No Limitations                                                                                    |
| Repair Lifespan                         | 20 Years                                                                                          |
| Wall Loss Defects (Type A)              | Permissible                                                                                       |
| Through Wall Defects (Type B)           | Permissible                                                                                       |

## PRODUCT ISO TS-24817 & ASME PCC2 QUALIFICATION DATA

| TEST                                            | TEST CODE   | METRIC                 | IMPERIAL              |
|-------------------------------------------------|-------------|------------------------|-----------------------|
| Ply Thickness [mm, inches]                      | ASTM D3039  | 0.53                   | 0.02                  |
| Tensile Modulus Circumferential [GPa, ksi]      | ASTM D3039  | 38.93                  | 5646                  |
| Tensile Modulus Axial [GPa, ksi]                | ASTM D3039  | 37.27                  | 5406                  |
| Tensile Strength Circumferential [MPa, ksi]     | ASTM D3039  | 417.3                  | 60.52                 |
| Tensile strain to failure [%]                   | ASTM D3039  | 1.06                   | 1.06                  |
| In Plane Shear Modulus [GPa, ksi]               | ASTM D3039  | 1.14                   | 165.3                 |
| Poisson's Ratio                                 | ASTM D3039  | 0.053                  | 0.053                 |
| CTE [mm/mm/°C, In/In/°F] - Circumferential      | ISO 11359-2 | $5.847 \times 10^{-6}$ | $3.25 \times 10^{-6}$ |
| CTE [mm/mm/°C, In/In/°F] - Axial                | ISO 11359-2 | $4.70 \times 10^{-6}$  | $2.61 \times 10^{-6}$ |
| Heat Distortion Temperature [°C/°F]             | ISO 75-3    | 271.27                 | 520.3                 |
| Shore D Hardness                                | ISO 868     | 87                     | 87                    |
| Lap Shear Strength - SA2.5 [MPa, ksi]           | ASTM D3165  | 14.19                  | 2.06                  |
| Lap Shear Strength to Steel SSPC-SP3 [MPa, ksi] | ASTM D3165  | 10.961                 | 1.59                  |
| Lap Shear Strength to Steel SSPC-SP2 [MPa, ksi] | ASTM D3165  | 6.133                  | 0.89                  |

# REVOWRAP 185

## PACKAGING INFORMATION

### CARBON FIBRE FABRIC

| PRODUCT CODE | DESCRIPTION                                   |
|--------------|-----------------------------------------------|
| RCT-50-10    | Carbon Cloth: T- 0.44mm-W-50mm x L-100 Meter  |
| RCT-80-10    | Carbon Cloth: T- 0.44mm-W-80mm x L-100 Meter  |
| RCT-100-10   | Carbon Cloth: T- 0.44mm-W-100mm x L-100 Meter |
| RCT-150-10   | Carbon Cloth: T- 0.44mm-W-150mm x L-100 Meter |
| RCT-250-9    | Carbon Cloth: T- 0.44mm-W-250mm x L-50 Meter  |

### PRIMER

| PRODUCT CODE | DESCRIPTION                      |
|--------------|----------------------------------|
| R185-P-A-1   | Revowrap185 Primer, Part A, 250g |
| R185-P-B-1   | Revowrap185 Primer, Part B, 44g  |
| R185-P-A-2   | Revowrap185 Primer, Part A, 500g |
| R185-P-B-2   | Revowrap185 Primer, Part B, 81g  |

### SATURATOR

| PRODUCT CODE | DESCRIPTION                         |
|--------------|-------------------------------------|
| R185-S-A-1   | Revowrap185 Saturator, Part A, 260g |
| R185-S-B-1   | Revowrap185 Saturator, Part B, 44g  |
| R185-S-A-2   | Revowrap185 Saturator, Part A, 510g |
| R185-S-B-2   | Revowrap185 Saturator, Part B, 81g  |

# REVOWRAP 185

## » ADVANTAGES

- Fast, non-invasive repair - doesn't require hot work
- Repairs done live - no unplanned downtime
- Can handle complex geometries
- Resistant to harsh chemicals

## » USES

- Internal corrosion
- External corrosion
- Mechanical damages
- Weld anomalies

## » INDUSTRIES

- Oil and gas facilities
- Petrochemical plants
- Chemical plants & sub sea
- Transmission pipelines

## CONCLUSION

Revowrap is available in a range of widths and lengths and is designed for variants of pipe diameters and defect ranges. Revowrap may be applied in continuous spiral wraps used for continuous lengths of pipe, circumferential wraps for localised defects and weld defects. Revowrap 185 is the ideal solution for pipes where corrosion, mechanical damage or support abrasion has reduced the remaining wall thickness to below the MAOP. Once applied Revowrap 185 restores the pipe integrity back to the original design specification and also provides excellent corrosion and abrasion protection.



## THE CARBONTECH INNOVATIVE PRODUCT RANGE

|                           |                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Revowrap 80</b>        | High performance quad-axial glass and carbon fibre pipe wrap system used with ambient temperature 2-part epoxy system. |
| <b>Revowrap 110</b>       | High performance carbon fibre pipe wrap system used with an high temperature 2-part epoxy system.                      |
| <b>Revowrap 185</b>       | High performance carbon fibre pipe wrap system used with ultra high temperature 2-part epoxy system.                   |
| <b>Revoshield 124</b>     | High performance fibre glass coating system used with super strength 2-part epoxy system.                              |
| <b>Revowrap 175 Putty</b> | Medium viscosity high compression strength putty used for the profiling of Revowrap® systems.                          |
| <b>Revostrap</b>          | A 20 second leak repair system for low to medium pressure.                                                             |
| <b>Revomat</b>            | An intelligent post cure system for high temperature wrap systems.                                                     |
| <b>SPITZE Clamp</b>       | Temporary repair of live high-pressure leaks without having to shut down or isolate the system.                        |



# CARBONTECH

The place chemistry, engineering and global expertise are brought together to drive progressive innovation in advanced composite technologies for the emergency repair of critical assets **"There is nothing generic about us"** we don't just sell pipe wraps; we provide accurate engineering backing to deliver tailored solutions.

Sound and responsible engineering is the basis on which we build our company, products and services. It is the core to our success and it is the foundation on which we have engineered and manufactured our innovative and bespoke products.

We strive by a zero-failure philosophy and warrant our engineered composite solutions are tested, proven and validated. We vow to provide dependable, responsible and accurate information regarding the capabilities of our systems.



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