

# RES-Q® Composite Wrap



**Products and Services for Process Piping, Sizes: 2- through 60-inch**

T.D. Williamson, Inc.

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■ **RES-Q® Composite Wrap for Process Piping**  
Installation services and customer training available

## Description

### ■ Process Piping Rehabilitation

RES-Q® Composite Wrap offers a repair solution for process piping systems, refineries, and power plants experiencing internal or external corrosion, galvanic corrosion, weld defects and other defects. RES-Q Composite Wrap utilizes a stitched, bidirectional carbon fabric to provide superior structural reinforcement in the hoop and axial directions. The carbon fabric and a two-part epoxy resin create a monolithic composite that is capable of repairing pipes operating up to 271° F (132° C). RES-Q Composite Wrap is a flexible alternative to repair clamps, welded sleeves and pipe replacement.

### ■ Product Innovation

T.D. Williamson, Inc.'s extensive repair experience has been utilized to create a diverse repair option to satisfy the needs of the process piping owner as well as the installer. Featuring stronger, temperature resistant materials, RES-Q Composite Wrap truly represents the next generation of process piping repair with composite materials.

### ■ Certified Performance

Extensive testing validates the significant benefits of using RES-Q Composite Wrap where process piping needs structural reinforcement. Thoroughly tested by accredited third-party laboratories, RES-Q Composite Wrap meets the requirements of international composite standards ASME PCC-2 and ISO 24817. RES-Q Composite Wrap can reinforce both thinned wall sections and thru-wall defects.

### ■ Solution Assessment

The RES-Q Composite Wrap solution assessment compiles information such as pipe diameter, material grade, wall thickness, design pressure, design temperature, minimum and maximum operating pressure and temperature, size of anomalies, corrosion rate, and the desired repair life. A TDW representative will help determine the appropriate composite wrap configuration based on current as well as anticipated operating conditions. As part of the solution assessment, TDW offers a host of rehabilitation options for customers.

## Features

### ■ Improved Formulations

While maintaining no volatile solvents in a 100% reactive system and a two-year shelf life, RES-Q Composite Wrap formulations allow the repair of pipes operating up to 271° F (132° C). The resin formulation enhances the long-term strength of the epoxy matrix at higher temperatures.

### ■ Simplicity and Consistency

All RES-Q Composite Wrap resins and hardeners are packaged in metal containers for sturdiness during transportation. All materials specified for a RES-Q Composite Wrap solution are pre-measured, pre-cut and packaged for field installation. Established installation techniques ensure a thoroughly wetted carbon fabric and more consistent composite application. Two epoxy systems are available, depending on pipe operating temperature. See Temperature Rating Chart on page 2.

### ■ Enhanced Physical Properties

Thanks to material advances, RES-Q Composite Wrap results in fewer plies and reduced thickness process piping repairs because of greater strength, and higher modulus of elasticity at elevated temperatures. The stitched carbon fabric provides efficient load transfer from the process piping to individual fibers while also improving long-term strength.

### ■ Versatility

RES-Q Composite Wrap is a versatile solution to process piping defects where clearance between pipes or supports is limited. RES-Q Composite Wrap can be installed horizontally and vertically, and it can conform to straight pipes, vessels, heat exchangers, tanks, elbows, and even complex systems such as reducers, tees, and blind flanges.

## Options

### ■ Customization

Each customized RES-Q Composite Wrap solution is based on the process piping configuration, as well as any current or projected defect conditions. System design and fabric width options facilitate installation and provide uniform applications for process piping components like welds and bends. Standard, elbow and tee wraps are available; project kits are also available to meet virtually any need.

### ■ Training

Expert training for field technicians and contractors is offered at our state-of-the-art facility in Tulsa, Okla., U.S.A., at TDW facilities globally, or at customer locations. Composite wrap training can be incorporated with other covered tasks offered by the TDW LineMaster® training program.

### ■ Installation Services

Drawing upon the accumulated knowledge and experience of more than 200 certified technicians around the globe, TDW is proud to offer RES-Q Composite Wrap installation services.

ISO 9001 Certified

**Toll Free**

**1-888-829-1988**

**1-888-TDWmSon (839-6766)**

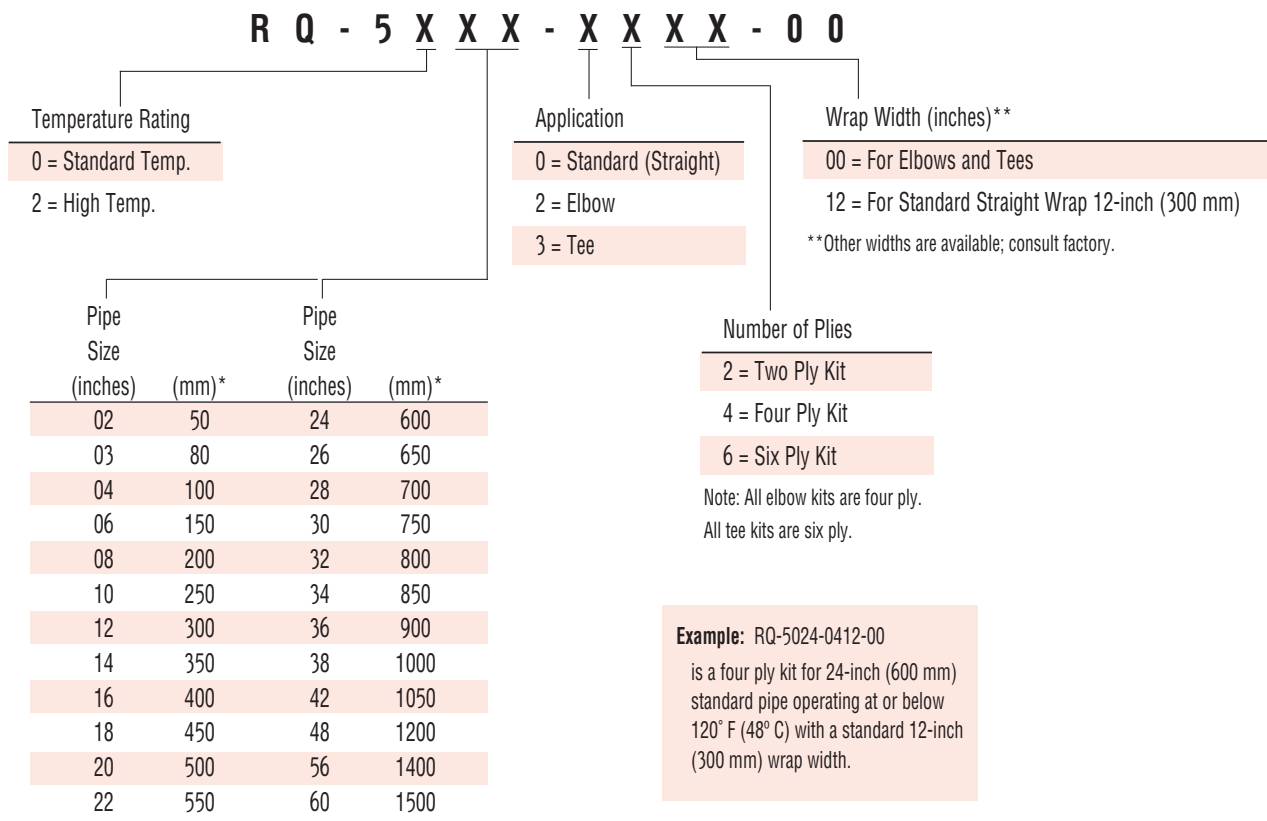


# RES-Q® Composite Wrap for Process Piping

## Temperature Ratings

Wrap Formulations	Minimum Cure Temperature	Maximum Design Temperature (Thru-Wall Defect)*	Maximum Design Temperature (Non Thru-Wall Defect)
Standard Temperature (Operating at or below 120° F / 48° C)	40° F (4° C)	147° F (63° C)	165° F (73° C)
High Temperature (Operating between 120° and 271° F / 48° and 132° C)	120° F (48° C)	253° F (122° C)	271° F (132° C)

\*Note: To attain maximum cure strength it is best to use an external heat source to cure the wrap at piping design temperature.



**Example:** RQ-5024-0412-00  
is a four ply kit for 24-inch (600 mm) standard pipe operating at or below 120° F (48° C) with a standard 12-inch (300 mm) wrap width.

\*Metric equivalents provided for reference only. Pipe width must be expressed in inches for purposes of part number designation.

## Putty

Pipe Coverage	Part Numbers	
	Standard Temp.	High Temp.
20 cubic inches / 328 cubic cm	RQ-0000-0020-00	RQ-0000-0520-00

Putty is used to fill large voids created by severe corrosion, gouges, grooves or dents. It is also used to taper uneven welds and misaligned pipes.

## Ultra Violet Coating

Pipe Coverage	Part Numbers	
	Standard Temp.	High Temp.
20 cubic inches / 328 cubic cm	RQ-0000-1020-00	RQ-0000-1520-00

# RES-Q® Composite Wrap for Process Piping

## Composite Wrap Installation Overview†

### 1. Check Pipe Surface



Gauge profile of cleaned surface.

### 2. Prepare Piping



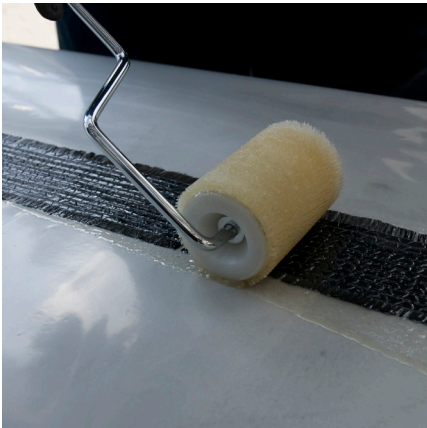
Apply putty to surface.

### 3. Prime Piping



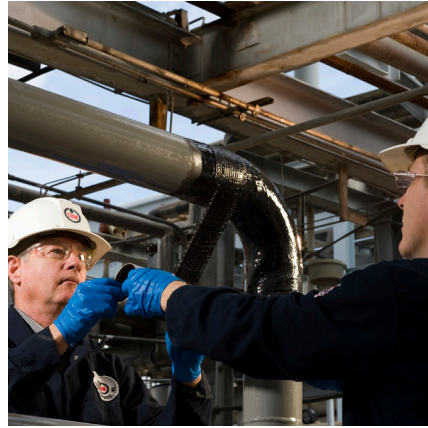
Apply epoxy to surface.

### 4. Prepare Wrap



Apply epoxy to fabric.

### 5. Apply Wrap



Wrap fabric on piping.

### 6. Apply Peel Ply



Prepare composite for topcoat.

† This does not reflect full installation procedures. For full installation instructions, refer to instructions provided with RES-Q® Composite Wrap Kit.

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