

RES-Q® Composite Wrap

Products and Services for Pipelines, Sizes: 2- through 60-inch



T.D. Williamson, Inc.

Bulletin No: 5300.003.01

Date: March 2008

Cross Indexing No: n/a

Supersedes: 5300.003.00 (02/08)



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

Description

■ Permanent Rehabilitation

RES-Q® Composite Wrap offers a permanent rehabilitation solution for liquid and gas pipelines with external corrosion, gouges, grooves, arc burns and dents. A high-strength carbon fiber and epoxy system, RES-Q Composite Wrap utilizes a stitched, bidirectional carbon fabric to provide superior structural reinforcement in the hoop and axial directions. Capable of restoring a pipeline to its design pressure without shutting down operation, RES-Q Composite Wrap is a flexible in-service alternative to repair clamps, welded sleeves and pipe replacement.

■ Product Innovation

The result of T.D. Williamson, Inc.'s extensive pipeline rehabilitation experience, RES-Q Composite Wrap addresses the needs of both the pipeline operator and composite wrap installer. Featuring stronger materials and improved performance based on years of customer feedback, RES-Q Composite Wrap truly represents the next generation of carbon composite wrap.

■ Certified Performance

Extensive testing validates the significant benefits of using RES-Q Composite Wrap where high pressure and longer service are anticipated. Thoroughly tested by accredited third-party laboratories, RES-Q Composite Wrap meets the requirements of international composite standards ASME PCC-2 and ISO 24817, liquid and gas pipeline standards ASME B31.4/B31.8, as well as U.S. Department of Transportation standards.

■ Solution Assessment

The RES-Q Composite Wrap solution assessment compiles information such as pipe diameter, material grade, wall thickness, design pressure, design temperature, size of anomalies, and minimum and maximum operating pressure and temperature. RES-Q ProCalc™ software analyzes this data to determine the number of wraps and repair length required for straight pipeline. As part of the solution assessment, TDW offers a host of rehabilitation options for customers to select.

Features

■ Improved Formulations

While maintaining no volatile solvents in a 100% reactive system, improved RES-Q Composite Wrap formulations provide a two-year shelf life. The resin formulation enhances the long-term strength of the epoxy matrix.

■ Simplicity and Consistency

All RES-Q Composite Wrap resins and hardeners are packaged in metal containers for reliability during transportation. All materials specified for a RES-Q Composite Wrap solution are pre-measured, pre-cut and packaged for field installation. RES-Q Composite Wrap utilizes only one epoxy product to both wet the carbon fabric and to bond the wrap to the pipeline. Improved installation techniques ensure a thoroughly wetted carbon fabric and more consistent composite application. The RES-Q Composite wrap is recommended to be applied on substrate surface temperatures between 40 and 120° F with a maximum design temperature of 165° F.

■ Enhanced Physical Properties

Thanks to material advances, RES-Q Composite Wrap results in fewer plies and reduced thickness because of greater strength, higher modulus of elasticity and lower creep. The fiberglass barrier in each restoration kit provides a positive layer of insulation between the pipeline and carbon fabric. This stitched carbon fabric provides efficient load transfer from the pipeline to individual fibers while also improving long-term strength.

■ Versatility

RES-Q Composite Wrap is a versatile solution to pipeline defects where clearance between pipelines is limited or width of excavation is narrow due to job site restrictions. RES-Q Composite Wrap can be installed horizontally and vertically, and it can conform to straight pipeline, elbows, and even complex systems such as reducers or tees.

Options

■ Customization

Each customized RES-Q Composite Wrap solution is based on pipeline configuration and current defect conditions. System design and fabric width options facilitate installation and provide uniform applications for pipeline components like welds and bends. Standard, elbow and tee wraps are 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., or at customer locations. Composite wrap training can be incorporated with other covered tasks offered by the TDW LineMaster™ training program.

■ Installation

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.

ISO 9001 Certified

Toll Free

1-888-829-1988

1-888-TDWmSon (839-6766)



RES-Q® Composite Wrap

R Q - 3 0 X X - X X X X - 0 0

Pipe Size (inches)	Pipe Size (mm)*	Pipe Size (inches)	Pipe Size (mm)*	Application	Number of Plys	Wrap Width (inches)*
02	50	24	600	0 = Standard (Straight)	2 = Two Ply Kit	00 = For Elbows and Tees
03	80	26	650	2 = Elbow	4 = Four Ply Kit	12 = For Standard Straight Wrap (12-inch)
04	100	28	700	3 = Tee	6 = Six Ply Kit	
06	150	30	750		8 = Eight Ply Kit	Other widths are available, consult factory
08	200	32	800			
10	250	34	850			
12	300	36	900			
14	350	38	1000			
16	400	42	1050			
18	450	48	1200			
20	500	56	1400			
22	550	60	1500			

Note: All elbow kits are four ply.
All tee kits are six ply.

Example: RQ-3024-0412-00 is a four ply kit for 24-inch standard pipe with a standard 12-inch 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 Number
10 cubic inches	RQ-0000-0010-00
20 cubic inches	RQ-0000-0020-00
30 cubic inches	RQ-0000-0030-00

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

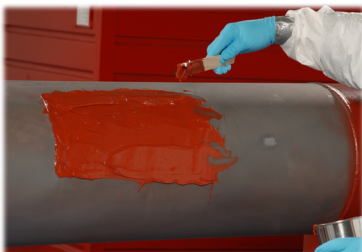
Identification Banding Kit

Pipe Size	Part Number
2- through 12-inch	00-8716-0001-00
14- through 30-inch	00-8716-0002-00
32- through 60-inch	00-8716-0003-00

Kit includes two ID bands, one for each side of the repair.

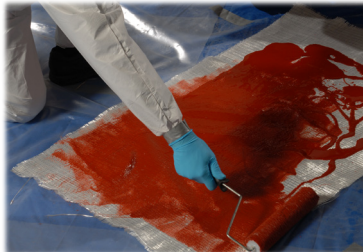
Composite Wrap 3-Stage Installation Overview†

1. Prepare Pipeline



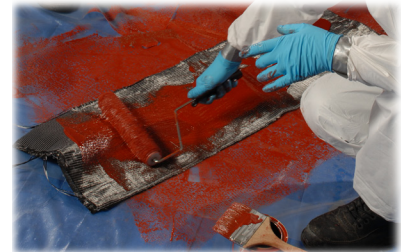
Fill void with putty.

2. Barrier Fabric Preparation



Wet barrier fabric with epoxy.

3. Restore Pipeline



Wet carbon fabric with epoxy.



Apply epoxy to pipeline.



Wrap barrier fabric on pipeline.



Wrap carbon fabric on pipeline.

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