



**STATE OF WISCONSIN**  
Department of Agriculture,  
Trade and Consumer Protection

**Approval # 20230013**  
(Revised 20190011)

Bureau of Weights and Measures  
Storage Tank Regulation  
P.O. Box 7837  
Madison, WI 53707-7837

## **Wisconsin ATCP 93 Material Approval**

**Equipment:** OPW-FCS “Loop System”

**Manufacturer:** OPW Fueling Containment Systems  
3250 US Highway 70 Business West  
Smithfield, NC 27577

**Expiration of Approval:** December 31, 2026

---

### **SCOPE OF EVALUATION**

OPW-FCS “Loop System” underground piping system as manufactured by OPW Fueling Components, was evaluated for use as petroleum product piping for underground storage tank systems in accordance with **ATCP 93.130(1)(b), 93.500(2), and 93.500(5)**, of the Wisconsin Administrative Code for Flammable and Combustible Liquids.

This evaluation summary is condensed to provide the specific installation, application and operational parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – ATCP 93.

### **DESCRIPTION AND USE**

The FlexWorks primary flexible piping system (designated as ‘Cxx’) is available in 0.75-in, 1-in., 1.5-in., 2-in., and 3-in. sizes with or without integral secondary containment (double-wall). The

FlexWorks Next Generation flexible piping system (designated as “CxxA”) with integral secondary containment is available in 0.75-in, 1-in., 1.5-in., 2-in., and 3-in. sizes. For both the FlexWorks and FlexWorks Next Generation secondary containment capability is provided by jacketing the primary pipe with a stand-off layer that is fabricated to produce an interstitial space (double-wall). For the Loop System, an access pipe is provided as part of the overall piping system to allow the FlexWorks product pipe to be retracted for inspections, repairs, or replacement, without excavation. The access pipe is optional for non-Loop System installations as the FlexWorks and FlexWorks Next Generation piping is UL-Listed for direct burial.

### Loop System

The OPW-FCS Loop System utilizes the OPW FlexWorks or FlexWorks Next Generation double-wall piping in conjunction with pre-fabricated factory assembled components. The Loop System is designed for use in pressure delivery piping systems that are typically routed in single or dual series. Supply lines are “Looped” from one dispenser to the next by connecting each pipe section directly to the inlet and outlet of specially designed “Angled Shear valves”.

The Loop System is also compatible for use with suction piping systems. The major difference is that the supply piping runs are routed in a “direct method” instead of a “series method”. Each dispenser is connected to the tank with a dedicated supply line. The geometry of the loop sumps facilitate installation of direct piping runs with the recommended slope back to the tank in Suction Systems. Inside the shallow dispenser sumps the pipe couplings are connected to plumbing assemblies that consists of the Loop System™ male adapter connected to a 45-degree elbow fitting that is connected to a union fitting.

## **TESTS AND RESULTS**

FlexWorks, Flex Works Next Generation, and “Loop System” flexible piping was found to comply with the current Underwriters Laboratories' requirements for this class of piping and is suitable for use in the distribution of petroleum products, alcohol, and alcohol-gasoline mixtures including Motor Vehicle Fuels, Concentrated Fuels, High Blend Fuels, Aviation and Marine fuels.

## **LIMITATIONS / CONDITIONS OF APPROVAL**

### FlexWorks, FlexWorks Next Generation, and the Loop System Flexible Piping

- FlexWorks and FlexWorks Next Generation flexible piping is approved as meeting the design and construction standards for underground flexible piping as specified in **s. ATCP 93.500(2)** and **93.520(1)(a)1**.
- All Limitations/Conditions of Approval listed for the FlexWorks or FlexWorks Next Generation piping apply to Loop System installations.

**Critical performance parameters for the FlexWorks and FlexWorks Next Generation flexible piping:**

- FlexWorks and FlexWorks Next Generation flexible piping is approved for underground (buried) installations only.
- The FlexWorks secondary containment jacket/double-wall piping and FlexWorks Next Generation double-wall piping, are approved for use as secondary barriers for interstitial monitoring systems in compliance with **s. ATCP 93.500(5) and 93.515(8)(c)2.**
- Installation, use and maintenance of all products shall be in accordance with the manufacturer's recommendations, this approval, and requirements as listed in ATCP 93 and adopted standards. In the event of conflicts, the stricter requirement shall govern.
- Leak detection for the piping system shall be provided in accordance with **s. ATCP 93.515(8)**. The specific leak detection system must be shown on the plans that are submitted for review in accordance with **s. ATCP 93.100**. Automatic line leak detectors and line tightness testing methods must be specifically approved for use with flexible piping in accordance with **s. ATCP 93.130(1)(a)**. (Note: Evaluation of these leak detection methods with the standard EPA protocol does not demonstrate acceptability for use with flexible piping.)

**Critical performance parameters for the Loop System:**

- The Loop System shall be installed as an open interstitial system with the secondary interstitial space of each pipe run\* open to a sump.
- Each dispenser, submersible, and transition sump shall be individually monitored using electronic interstitial monitoring sensors in accordance with **ATCP 93.500(5)(f)**.
- In addition to the electronic sump monitoring requirement listed above, product piping shall be monitored with the use of:
  - Electronic line monitoring that tests for leak rates of 3.0 gph @ 10 psi and 0.2 gph monthly monitoring in accordance with **ATCP 93.515(8)**. Additionally, a yearly tightness test shall be performed on the entire piping system interstitial space (all pipe runs). The tightness test can be performed using any Department approved method for testing of the interstitial space of secondary containment piping, or in accordance with **NFPA 30-2008, Section 27.7.2**.

OR

- Pressure, Vacuum, or liquid-filled interstitial monitoring system in accordance with **ATCP 93.515(8)(c)(3)**.

\*A pipe run is considered the length of pipe from one connection point to another, i.e.; the dispenser connection to the tank connection, or the length of pipe between dispenser or transition sump connections.


- This approval will be valid through December 31, 2026, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the Department. The

Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

**DISCLAIMER**

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: September 28, 2023

Reviewed by:  Date: \_\_\_\_\_

Erik Otterson  
Environmental Engineering Specialist  
Bureau of Weights and Measures

Approved by:  Date: 9/28/2023

Greg Bareta, P. E.  
Section Chief  
Storage Tank Regulation  
Bureau of Weights and Measures