

# FLEX-COVER®

Resilient Tunnel Plug



Point-Of-Use  
Storage



Quick Deployment



100%  
Customizable

**Now From PS Flood Barriers!**  
Formerly A Product Of ILC Dover

## FLEX-COVER® RESILIENT TUNNEL PLUG (RTP)

*PUTS A STOP TO WATER IN TUNNELS OF ANY SHAPE OR SIZE*

The Flex-Cover® Resilient Tunnel Plug is a high-strength inflatable device that rapidly deploys to prevent flooding in a tunnel of any shape or size. Similar to how an automobile airbag functions in that this device resides in a small container, you then pressurize it (either remotely or locally) to shape when a flooding event occurs. Internal pressure exceeds the external water pressure threat to create the barrier, and the plug is held in place with friction. The Resilient Tunnel Plug can also be used for other applications, including the prevention of flooding from top-down water events or to partition tunnels to prevent the movement of smoke, chemical/biological agents or people.

### Flex-Cover® Resilient Tunnel Plug Benefits

- **Point-of-use Storage** - Deploys at the last moment for minimal operational disruption
- **Adaptable** - Conforming inflatable structure can adapt to any tunnel configuration
- **Compact Stowage** - Stores in small spaces
- **Scalable Design** - Can be sized to fit any tunnel
- **Simple Installation** - Requires limited changes to infrastructure to install, resulting in low installation and operational impact costs
- **Blocks Threats** - Weather, flooding, smoke, chemicals or people
- **Customizable** - From its weight, portability, size and material selected to stop specific threats





## Development:

The Resilient Tunnel Plug was developed under a Department of Homeland Security Science & Technology Directorate program. It was originally developed for security applications to protect underground subway systems from flooding caused by damage to an underwater transit tunnel.



## System Components:

### 1. Plug

- Three-layer flexible and damage-tolerant structure
- Outer-layer webbing and fabric made of Kevlar® or Vectran®
- Air-retention layer made of polyurethane-coated polyester

**2. Container** - Custom container that is mounted in the tunnel

**3. Pumps** - Fill the plug with air (or water)

**4. Control System** - Monitors the health of the system and controls pressure during/after deployment

## Configuration Options:

### 1. Fixed asset at point-of-use

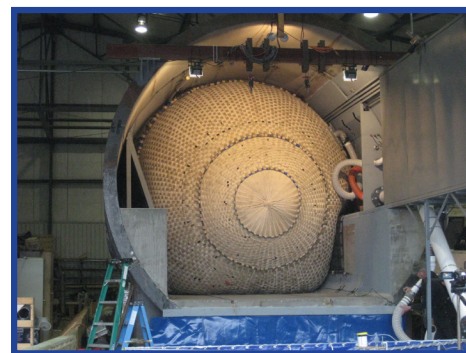
- Rapid response approach
- Mounted in tunnel
- Pressurization system is remote
- Can be automated or manually activated

### 2. Transportable System

- Deploy to location when needed
- Mobile platform
- Pressurization system can be remote or local
- Manually positioned for deployment

## Testing:

The Flex-Cover Resilient Tunnel Plug has been validated via testing in a 16.5-foot-diameter representative rail tunnel against a 30-foot water head pressure challenge.



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