

# Long-Term, Low-Emissions Performance with Fisher® ENVIRO-SEAL™ Packing Systems

Fisher® ENVIRO-SEAL™ packing systems provide the measure of emissions control security that you require. They are designed and tested for Fisher control valves to keep fugitive emissions below 100 parts per million volume (ppmv) in your throttling application for tens of thousands of cycles.

## Consider the Differences Between Packing Test Standards

There are many fugitive emissions test standards, all with a variety of testing methodologies and passing criteria. Which standards best represent your control valve applications?

**Control valve test standards require**  
20,000–100,000 cycles  
(ANSI/FCI 91-1 and ISO 15848-1)

**On/Off valve test standards require**  
1,510 cycles  
(API 622)

ENVIRO-SEAL packing systems have been tested to control valve test standards such as ANSI/FCI 91-1 and ISO 15848-1. In contrast, non-OEM packing typically only adheres to on/off valve test standards such as API 622.

## Proven Solution for 20+ Years

Utilize proven ENVIRO-SEAL packing systems, which have offered reliable fugitive emissions sealing and long cycle life since the Clean Air Act inception of Leak Detection and Repair (LDAR) more than 20 years ago.

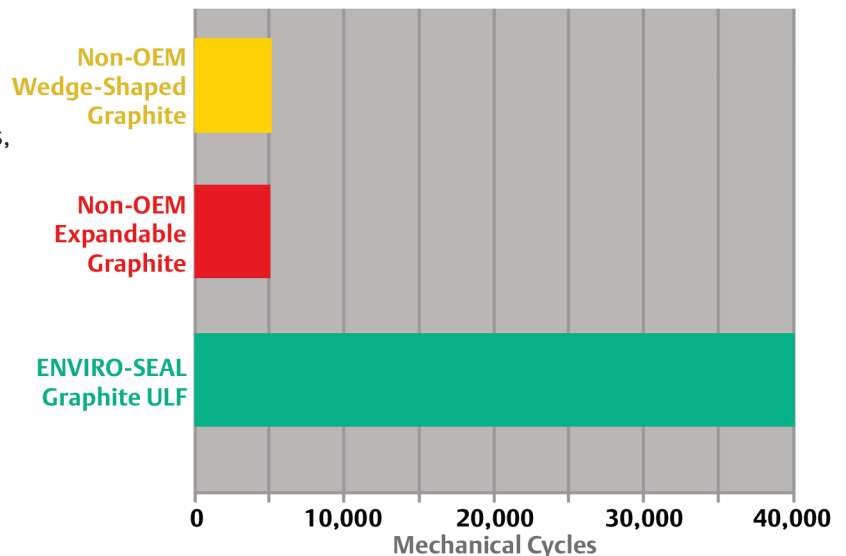
## Packing Design is More Than Controlling Fugitive Emissions

The design of packing systems requires an understanding of the entire control valve assembly. ENVIRO-SEAL packing systems are designed and tested for your Fisher control valves. You can meet 100 ppmv leakage and realize low maintenance, long service life, and optimal dynamic performance.

Non-OEM packing might meet your emissions needs on the first day. In the long run, however, unknown friction and dynamic performance characteristics can impact your loop performance and reduce your bottom line.

## ENVIRO-SEAL PROVIDES SUSTAINED, LOW-EMISSIONS PERFORMANCE

Number of mechanical cycles with less than 100 ppmv packing leakage



*Non-OEM graphite packing does not measure up to the ENVIRO-SEAL graphite ULF packing system as proven by 2001 Emerson lab testing at 1500 psi and thermal cycling to 600°F without packing adjustment.*



*ENVIRO-SEAL packing systems have been designed, tested, and validated to extend control valve service life and meet current environmental standards.*



## There are Differences Between Packing Systems

### ■ Have Fisher ENVIRO-SEAL packing systems been tested to industry-recognized fugitive emissions standards for control valves?

- Yes, ENVIRO-SEAL packing systems have been successfully tested to ANSI/FCI 91-1 to meet LDAR valve leakage requirements, as well as international standards, such as ISO 15848-1, across a broad range of pressure and temperature conditions.
- Contact your local Emerson sales office for more information and/or copies of relevant certificates.

### ■ What is the performance impact of using non-OEM packing?

- Potential for degradation of control valve dynamic performance and shutoff due to high friction.
- Unknown sealing characteristics due to generic designs. Non-OEM packing commonly seals well in the shop upon initial installation but can degrade quickly once thermally and mechanically cycled in the field.
- ENVIRO-SEAL packing systems are designed and tested for Fisher control valves to provide optimal dynamic performance in addition to 100 ppmv low-emissions service. You don't need to sacrifice control loop performance in order to meet emissions requirements.

### ■ What is the difference between API 622 and ANSI/FCI 91-1 or ISO 15848-1?

- Control valve standards ANSI/FCI 91-1 and ISO 15848-1 require OEM valve model-specific testing of packing designs.
- API 622 does not require valve model-specific testing and requires only 1,510 mechanical cycles. API 622 is most applicable to on/off and isolation valves, which experience relatively few cycles in service.
- ANSI/FCI 91-1 and ISO 15848-1 control valve requirements range from 20,000–100,000 mechanical cycles.

Fugitive Emission Standard	Mechanical Cycles	Leakage Criteria
ANSI/FCI 91-1	25,000–100,000	Class 1: 100 ppmv
		Class 2: 500 ppmv
ISO 15848-1	20,000–100,000	Class A: $1.76 \times 10^{-8} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1} \cdot \text{mm}^{-1}$ of stem diameter
		Class B: $1.76 \times 10^{-6} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1} \cdot \text{mm}^{-1}$ of stem diameter
		Class C: $1.76 \times 10^{-4} \text{ atm} \cdot \text{cm}^3 \cdot \text{s}^{-1} \cdot \text{mm}^{-1}$ of stem diameter
API 622	1,510	500 ppmv

### ■ Does Emerson offer extended warranty coverage for Fisher ENVIRO-SEAL packing systems to meet my Enhanced LDAR requirements?

- Yes, customers with consent decrees requiring 100 ppmv Low-Emission (Low-E) or Certified Low-Leaking packing are offered an optional five-year warranty for ENVIRO-SEAL packing systems.
- Contact your local Emerson sales office for more information.

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Scan this code to view a brochure about ENVIRO-SEAL packing systems.



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