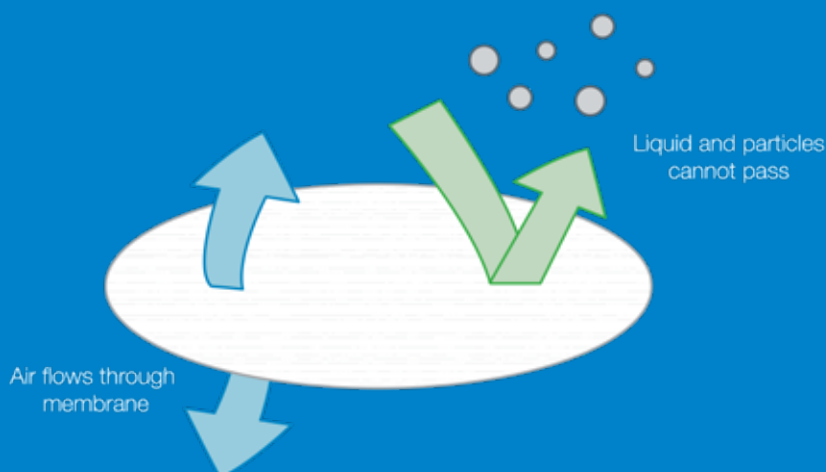


# OXYPHEN VENTING SOLUTIONS

Track-etched and fiber-based membrane vents designed to meet a broad set of customer specifications in automotive, healthcare & industrial applications

# Venting Membranes Relieve Pressure While Protecting Enclosure Content From the External Environment



## OXYPHEN VENTING SOLUTIONS

Venting processes are critical to the proper function of both high-tech and low-tech devices that are used everyday. Whether to relieve pressure, allow for cooling, or protect contents from the external environment, vents allow for proper functioning and maximized lifespan for electronics and other sealed or closed systems. Oxyphen membranes and membrane assemblies solve venting challenges in automotive, healthcare and industrial applications.

Oxyphen solves customer-specific challenges with high-quality membranes with reliable parameters. To get excellent mounting, our membranes can be assembled using either ultrasonic welding or adhesive technologies.

### Automotive Venting

In the challenging automotive environment, protection against outside water and dirt is key, while a stable pressure compensation or active venting function is needed to avoid damage or even failure of electronic components over the vehicle's lifetime. Oxyphen's products are used widely to protect all kinds of sensors and actuators with various housing types in all vehicles.

Oxyphen has the technology and products to solve your automotive venting needs with high quality to protect your electronics parts over their lifetime. With our experience for automotive and electronic applications, we have the expertise to choose the best membrane solution from our existing and approved portfolio or develop a customized solution for your individual requirements.

### Healthcare Venting

When a customer is seeking a highly reliable and stable venting solution, Oxyphen is the right partner. Our track-etched membranes not only enable a consistent air flow and high protection levels, but also allow for the most common sterilization methods such as Gamma

and X-ray sterilization in closed containers. Our precise control of the pore size allows the usage of the membrane as sterile venting application.

### Industrial Venting

Oxyphen membrane technology enables equalization of pressure and maximum protection of many industrial, consumer & electronics products. From sensor housings to industrial packaging, the wide range of available specifications makes it easy to find the right solution within the portfolio of our track-etched membranes.





# AUTOMOTIVE VENTING SOLUTIONS

A close-up photograph of the front of a car, focusing on the headlight and grille. The image is overlaid with a semi-transparent blue filter. The headlight is on the right, showing internal components like the bulb and reflector. The grille is below it, featuring horizontal slats. To the left, a portion of a multi-spoke alloy wheel is visible. The overall composition is clean and modern, emphasizing automotive design.

# Automotive Venting

## Electronic and Sensor Housing Protection

Small electronic housings – especially sensor housings – need maximum protection against water and dust/dirt; however the gas flow should be minimal to avoid the transport of water molecules.

Sensors fulfill a very sensitive function within the automotive infrastructure, which require membranes to secure their housing with highly defined and stable characteristics.

The Oxyphen membrane technology enables a very uniform gas flow while simultaneously maximizing protection against outer media.

### Key Benefits

- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Small tolerance range for reliable leakage tests for end of line (by air flow)
- Precise membrane characteristics regarding air flow and water entry protection
- Tunable protection level against water entry
- Strong chemical resistance performance
- Self cleaning ability due to the smooth surface

### Technical Specifications

Available Options	
Airflow	Up to 37 l / (bar cm <sup>2</sup> min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to + 150 °C (up to 180° C for special application)
Standard dimensions	Outer dia. 5 – 14 mm
Oleophobic rating	According to AATCC 118: 8B
Certifications	IATF 16949

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

## Material Options

Unique-Mem® PET track-etched membranes (unsupported)

RoTrac® PET track-etched membrane with PET/PP non-woven material as laminated support material for higher robustness

### Related Products

- Rollstock membrane
- OxyDisc® membrane discs
- OxyPad® self-adhesive membrane pads
- OxySeal® pressure compensation units
- Assemblies & modules

### Related Technologies

- Track-etched membranes
- Fiber-based membranes



Automotive vent

## Headlamp Venting

Venting applications are increasingly more important in the automotive segment. Headlamp assembly systems require a specific airflow in order to cool the system and to prevent condensation of moisture; however, liquids and dirt particles are not allowed to enter these systems. This challenge can be easily solved with our hydrophobic fiber-based membranes.

### Key Benefits

- Remove moisture through maximum airflow
- Vent the headlamp to cool down the modules
- Prevent the entry of splash water and dust

### Technical Specifications

Available Options	
Airflow	Up to 3,000 l / (bar cm <sup>2</sup> min)
Water entry pressure (WEP)	Splash water protection up to 30 mbar
Applicable temperature range	-40 to + 150 °C
Design	Rectangular or disc currently up to 55 mm

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

## Material Options

RoTrac® PET fiber-based membranes

RoTrac® PP fiber-based membranes

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- OxySeal pressure compensation units
- Assemblies & modules

### Related Technologies

- Fiber-based membranes

## Battery Venting

Venting and protection solutions for battery technology/battery packs are critical in the current automotive landscape. The technical challenge for these applications can best be solved with our hydrophobic membranes. Pressure balancing in combination with water tightness is a requirement for large and small scale battery pack systems. In addition, safety features such as blow-by function in case of cell defect can be incorporated into a venting system.

### Key Benefits

- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Macro venting for fast pressure balancing of large capsules
- Micro venting for high protection against water and dust
- Adjustable emergency venting function to fulfill defined burst pressure requirements

### Technical Specifications

Available Options	
Airflow	Up to 1'700 l / (bar cm <sup>2</sup> min)
Water entry pressure (WEP)	Splash water protection up to 30 bar
Applicable temperature range	-40 to + 150 °C (up to 180 °C for special application)
Standard dimensions	Outer diameter up to 55 mm
Adjustable burst pressure for emergency venting	From 0.2 – 5.0 bar

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

### Material Options

Unique-Mem® PET track-etched membranes unlaminated
RoTrac® PET track-etched membranes laminated with PET/ PP non-woven
RoTrac® PET fiber-based membranes

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- OxySeal pressure compensation units
- Assemblies & modules

### Related Technologies

- Track-etched membranes
- Fiber-based membranes

## Small Lamps and Side Indicator Lamps

Avoid fogging and cracks on the housing of small lamps like side indicators or fog lamps that are directly exposed to the harsh outer weather conditions due to their mounting spots directly on the vehicle's exterior.

### Key Benefits

- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- High protection against water and dust
- Strong defogging characteristics

### Technical Specifications

Available Options	
Airflow	Up to 37 l / (bar cm <sup>2</sup> min)
Water Entry Pressure (WEP)	Splash water protection up to 30 bar
Applicable temperature range	-40 to +150 °C
Standard dimensions	Outer diameter up to 14 mm

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

### Material Options

Unique-Mem® PET track-etched membranes unlaminated
RoTrac® PET track-etched membranes laminated with PET/ PP non-woven

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- OxySeal pressure compensation units
- Assemblies & modules

### Related Technologies

- Track-etched membranes
- Fiber-based membranes



OxySeal® Pressure Compensation Units



# HEALTHCARE VENTING SOLUTIONS



# Healthcare Venting



## Sterile Venting for IV Solution

The IV solution requires a sterile venting solution to keep the drug delivery to patients safe. In this specific case, the 0.2 micron pore size membrane is used and is mounted to the application by ultrasonic welding. The complete assembly is afterwards sterilized easily and reliably by Gamma or X-Ray irradiation.

### Key Benefits

- Reliable venting and sterility control
- Easy mounting with ultrasonic welding by rollstock application
- Gamma- and X-ray stable solution for easy and reliable sterilization
- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP

### Technical Specifications

Available Options	
<b>Airflow</b>	> 2.5 l / (bar cm <sup>2</sup> min)
<b>Water entry pressure (WEP)</b>	Splash water protection > 2.8 bar
<b>Applicable temperature range</b>	-40 to +150 °C (not critical)
<b>Dimensions</b>	Customized membrane width using Rollstock product

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
Unique-Mem® PET track-etched membrane unlaminated
RoTrac® PET track-etched-membrane laminated with PP/PET non-woven support

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads

### Related Technologies

- Track-etched membranes

## Venting Caps for Cell Culture Flasks

Customers looking to use venting with a sterile membrane can use cell culture flask caps. In these caps, the 0.2 micron pore size sterile venting membrane is used and can be mounted either by heat sealing or ultrasonic welding.

### Key Benefits

- Protect against water and dust, small particles and bacteria from outside
- Enables continuous air exchange
- Sterilization of the final growth chamber is possible with Gamma and /or X-ray irradiation
- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP

### Technical Specifications

Available Options	
<b>Airflow</b>	> 2.5 l / (bar cm <sup>2</sup> min)
<b>Water entry pressure (WEP)</b>	Splash water protection > 2.8 bar
<b>Applicable temperature range</b>	-40 to +150 °C (not critical)
<b>Dimensions</b>	Customized membrane width with Rollstock product
<b>Membrane type</b>	hydrophobic membrane

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

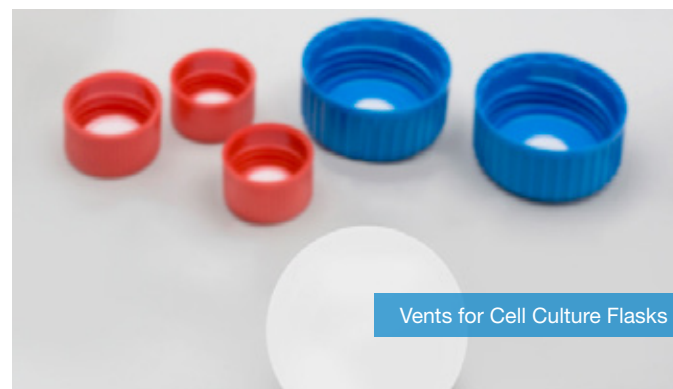
Material Options
RoTrac® PET track-etched membrane laminated with PP/PET non-woven support

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads

### Related Technologies

- Track-etched membranes





Oxyphen Flask Vents

## Ostomy Bag / Waste Bag

Short peaks of over-pressure during the transport of high gas volumes to the outside while keeping waste from leaving the bag can be solved with a venting membrane.

### Key Benefits

- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- High protection against media leakage
- Maximum and fast gas exchange
- Good performance with waste gas
- Easy to assemble for ultrasonic welding & heat staking processes

### Technical Specifications

Available Options	
<b>Airflow</b>	Up to 18 l / (bar cm <sup>2</sup> min)
<b>Water entry pressure (WEP)</b>	Splash water protection up to 3 bar
<b>Applicable temperature range</b>	-40 to + 150 °C
<b>Standard Dimensions</b>	Outer diameter up to 28 mm

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
RoTrac® PET track-etched membranes unlaminated
RoTrac® track-etched membranes laminated with PET/PP non-woven support

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads

### Related Technologies

- Track-etched membranes



Oxyphen Medical Vent



Ostomy Bag



# INDUSTRIAL VENTING SOLUTIONS



# Industrial Venting

## Cleaning Agent Packaging / Spray Nozzles

Pressure compensation is needed in order to allow continuous usage of spray bottles and cleaning agent storage of various types. In order to secure the function of the spray or release from a bottle, an Oxyphen pressure compensation membrane is used at e.g. the spray nozzle. It allows for precise air exchange so that the right amount of chemical or detergent is used every time and also prevents leakage and spill of the ingredients. The media is hence safely stored and can be used very reliably for a long period of time.

### Key Benefits

- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- High protection against leakage
- Defined air flow for pressure exchange
- Usable in very small dimensions, yet still providing very reliable performance

### Technical Specifications

Available Options	
Airflow	Up to 18 l / (bar cm <sup>2</sup> min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to +150 °C (< 180 °C for special application)
Standard dimensions	Outer diameter up to 14 mm
Certifications	Chemical resistance: According LV124/ ISO 16750-5 (in progress)

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
Unique-Mem® track-etched membrane unlaminated
RoTrac® track-etched membranes laminated with PET/ PP non-woven material

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- OxySeal pressure compensation units

### Related Technologies

- Track-etched membranes

## Electronic Beauty Devices

Electronic beauty devices are often used in a humid or wet environment. As a result, the inside electronics and motors must be protected by a membrane against water and other media. Common devices featuring the Oxyphen track-etched membranes are shavers and electronic toothbrushes.

### Key Benefits

- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- High protection and pressure compensation at the same time
- Self cleaning effect through the smooth surface
- Good chemical resistance

### Technical Specifications

Available Options	
Airflow	Up to 18 l / (bar cm <sup>2</sup> min)
Water entry pressure (WEP)	Splash water protection up to 3 bar
Applicable temperature range	-40 to + 150 °C
Standard dimensions	Outer diameter up to 14 mm
Certifications	Chemical resistance: According LV124/ ISO 16750-5 (in progress)

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

Material Options
Unique-Mem® track-etched membrane unlaminated
RoTrac® track-etched membranes laminated with PET/ PP non-woven

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- Assemblies & modules

### Related Technologies

- Track-etched membranes



Electric Facial Cleanser

## Electronic and Sensor Housing Protection

Small to medium electronic housings, and especially sensor housings, need a reliable protection against water and dust/dirt; however, the gas flow should be minimal to avoid the transport of water molecules. The track-etched membrane technology enables a very uniform gas flow with maximum protection against outer media, which is always adjustable to fulfill the customer's specific needs for all industrial applications.

### Key Benefits

- **100% Free of PFOA:** Compliant with (EC) 1907/2006 REACH / Regulation (EU) 2019/1021 POP
- Small tolerance range for reliable leakage tests for end of line (by air flow)
- Precise membrane characteristics regarding air flow and water entry protection
- Tunable protection level against water entry
- Best chemical resistance performance

## Technical Specifications

### Available Options

<b>Airflow</b>	Up to 37 l / (bar cm <sup>2</sup> min)
<b>Water entry pressure (WEP)</b>	Splash water protection up to 3 bar
<b>Applicable temperature range</b>	-40 to + 150 °C (< 180° C for special application)
<b>Standard dimensions</b>	Outer dia. 5 – 14 mm
<b>Oleophobic rating</b>	Grade up to 7.5, according to AATCC 118
<b>Certifications</b>	Chemical resistance: According LV124/ ISO 16750-5 (in progress)

<sup>1</sup> Actual high temperature range dependent on adhesives, welding, and material used. For more customized solutions, we offer fiber-based membranes that can be used up to 180 °C

### Material Options

Unique-Mem® PET track-etched membrane un laminated

RoTrac® track-etched membrane laminated with PP/PET non-woven for increased robustness

### Related Products

- Rollstock membrane
- OxyDisc membrane discs
- OxyPad self-adhesive membrane pads
- OxySeal pressure compensation units
- Assemblies & Modules

### Related Technologies

- Track-etched membranes





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