

Turning your  
optical system visions  
into successful solutions

The Right Filter.  
Right Now.



**Semrock**  
A Unit of **INX** Corporation

## LET OUR TEAM ACCELERATE YOUR SUCCESS

When you are developing optical instrumentation you continually face new challenges: new customer requirements and product expectations, evolving technologies, changing markets, and the need for a rapid and decisive response. To help you conquer those challenges, Semrock provides superior products and expert, personalized support.

Semrock specializes in the volume production of optical filters for the life science and analytical instrumentation markets, and also manufactures filters for laser and optical systems applications. Our products exclusively feature hard, ion-beam-sputtered coatings for proven reliability. These filters will not change or degrade in any way as a result of humidity or temperature variations, nor will they “burn out” with normal use. All of our products are backed by our industry-leading five-year warranty.

*“When we were developing the Polonator, an advanced second generation genomic sequencer, we had three primary goals for our fluorescence filters: brick-wall cutoffs, high passband transmission, and a price that fit our budget. Semrock’s ion-sputtered filters delivered on all three fronts.”*  
— Kevin McCarthy, Dovermotion

Overall, Semrock filters are brighter, more durable, and spectrally more sophisticated than those made by other coating technologies, driving significant improvements for our customers and their applications: faster measurement times, reduced downtime, repeatable manufacturing, and lower optical component count.

We make our unique products with lot-to-lot consistency in high volumes, providing our OEM customers with a dependable supply.



*Since our primary business is in life science and analytical instrumentation, we thoroughly understand our customers’ requirements.*

*And our engineers excel at collaborating with your team to help you solve your specific problems.*

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## OUR VISION

Supply our customers with the highest standard in optical filters for biotechnology & analytical instrumentation.

Creatively apply our broad range of resources to provide each customer the right optical solution at the right time.

## OUR FOCUS ON SOLVING PROBLEMS

We find solutions “within the box” of our standard catalog, and “out of the box” with the help of our expert design staff—and we apply each strategy in the right proportion.

With thousands of in stock items available for shipment the same day, combined with our ability to custom-size these items (typically in less than a week) and perform custom co-development engineering with fast prototyping, we can quickly provide intelligent solutions that meet your price points.

## OUR FOCUS ON OEMS

We care about the needs of Original Equipment Manufacturers.

**Rapid prototyping** — for design and production of new prototype filters

**Consistent performance** — Our products are measured and reproducible, from the first lot to the latest.

**Delivery Time** — We continually track and achieve our “on-time delivery to promise” metric of > 98%.

**Scalability** — We can quickly design and develop a prototype filter and then produce it accurately in high volume.



## SEMROCK QUICK FACTS

More than 4000 catalog items in stock, available for same-day shipping

Filter wavelengths 200 - 2000 nm

5-year warranty

1 week or less turnaround time for most custom sizing orders

More than 500,000 filters shipped worldwide since 2003

Our filters are used on all 7 continents

More than 100 employees nationwide

100 years combined expertise in optical engineering and system design

9 patents, numerous patents pending

We want to leave your team feeling like *this* when you work with us.



## FILTER AND OPTICAL SYSTEM DESIGN CAPABILITIES

**Versatility** — Our design engineers are experts in optical science and engineering, physics, electrical engineering, mechanical engineering, computer science, and biology, and all are experienced problem-solvers.

**Industry's fastest design turnaround** — We've designed and implemented new proprietary design software - Firelight. With Firelight we can complete design tasks in minutes that formerly required days or weeks. Now we can typically design and quote a prototype within a week, where previously it could take 2–4 weeks.

**Modeling toolbox** — We use our own state-of-the-art software to simulate complex coating runs before they reach manufacturing, yielding greater than 97% confidence in the engineering design.

**Custom evaluation** — By evaluating the entire optical system we can design and optimize the right filters. This inclusive approach minimizes system redesigns which add cost and delay to your project development.

**Personalized service** — We are responsive to your needs supplying careful analysis and prompt replies.

## SUPPLY CHAIN MANAGEMENT (SCM)

We incorporate best SCM practices into disciplined standard operating procedures.

**Rigorous documentation and revision control**

**Lead time management** — monitoring tools keep inventory at levels to satisfy delivery goals

**Traceability** — complete product histories of each manufactured item

**Blanket orders, purchasing contract and just-in-time delivery**

## OPTIMIZED MANUFACTURING

We stress continuous improvement in our manufacturing processes.

**5S** — the five dimensions of workplace organization methodology and streamlining practice

**Kaizen** — system problem solving for continual improvements of our manufacturing processes

**Lean principles** — continual streamlining to reduce waste

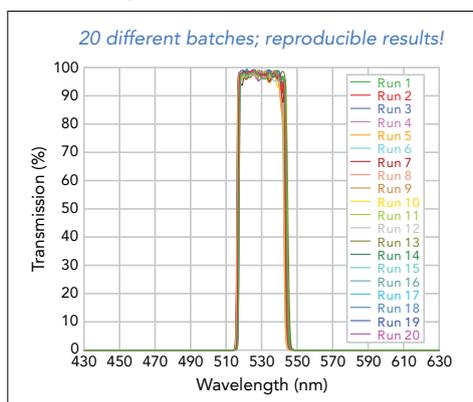
## THE SEMROCK ADVANTAGE

**Performance** — Semrock optical filters have the highest transmission specifications, yielding better contrast and faster measurements—even at ultraviolet (UV) wavelengths.

	Bandpass	Edge	Notch	Dichroic Beamsplitter
Typical Transmission	> 97%	> 98%	> 95%	> 92 - 95%
Typical Blocking/Reflection	OD 6-8	OD 6	OD 6	Reflection > 98%
Wavelength Range	230 - 1,700 nm	230 -1,700 nm	230 - 1,100 nm	230 - 1,700 nm
Edge Steepness	< 1.0%	< 0.2%	< 1.0%	< 2.0%

Maximum transmission, optimized blocking and the steepest edges give Semrock filters market-leading performance.

### Reliability



Every lot performs like the first.

- Impervious to humidity and temperature induced degradation
- Lasting high level of performance
- Meet or exceed requirements for environmental and physical durability in MIL-STD-810F, MIL-C-48497A, MIL-C-675C, and ISO 9022-2.
- Eliminate replacement costs, decreasing the cost of ownership

**Repeatability** — Whether a filter is from the first lot or the last, its properties are the same. Our OEM customers can rely on a secure and dependable supply line.

## MARKETS SERVED AND APPLICATIONS

We serve key markets across life sciences, analytical instrumentation, science and technology. Much of our business is in the fluorescence instrumentation markets.

### Fluorescence Instrumentation Filters

Fluorescence microscopy, DNA sequencing, in vivo imaging, flow cytometry, quantitative (q) PCR, high content screening, microarray readers, chemical process monitoring, laboratory fluorometers, microplate readers, gel imaging systems

### Raman Spectroscopy Filters

Raman microscopy, portable Raman analyzers (handheld), Raman microprobes (optical fiber probes), laboratory spectrometers

### Laser Analytical & Optical System Filters

Surgical laser systems (e.g., ophthalmic), scientific research, environmental monitoring, laser materials processing, ultrafast science, remote sensing



## PRODUCT CAPABILITIES

### Types of Filters

Fluorescence filters; Raman spectroscopy filters; tunable bandpass filters; deep notch filters and laser-line filters; laser diode clean-up filters; filters to combine or separate laser beams; filters to isolate popular mercury lamp lines; polarization filters; laser mirrors; and tunable filters

### Custom Solutions

- Wavelength functionality to specification, 200 nm–2000 nm
- Custom sizing – Round, square, or rectangular, from several mm to a few inches
- Product labeling – on-filter laser engraving for easy identification and storage



## OUR TECHNOLOGY

Our manufacturing facilities use state-of-the-art coating chambers in protected cleanroom environments. We are currently expanding to meet increasing demand and planning for continuing growth.

Ion Beam Sputtering, the industry gold-standard thin-film process, deposits low-loss, precise-thickness, and reliable optical-thickness layers. Semrock has made it viable for high-volume production using our proprietary process and optical monitoring technology.

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## QUALITY SYSTEMS

### Certifications and Compliance

Semrock products are compliant, without exemptions, with EU Directive 2002/96/EC, Restrictive Use of Hazardous Substances (RoHS). We have instituted controls to ensure our suppliers provide only RoHS compliant materials for our products.

At Semrock we adhere to high levels of internal process control and reliability testing that well exceed the industry standard. We have passed 100% of quality audits by our major OEM customers.

### Quality Standards in Place with Thorough Process Documentation

The Semrock quality system is modeled on the ISO 9001:2000 Quality System Standard 2. The structure of the quality system is fully documented and controlled by our dedicated Documentation Specialist. In addition to rigorous documentation, many of the quality system processes are controlled via our Enterprise Resource Planning (ERP) computer system.

## CASE STUDIES

### Co-development Engineering Project

#### The Challenge

- 18 different large diameter filters
- Demanding specifications for transmission, passband, optical density uniformity, wide-angle performance, & scattering for all 18 filters

#### The Solution

- Designed all filters to meet or exceed specifications
- Re-designed customer's optical cell to solve scattering problems
- Designed and built a unique, high-volume measurement platform for OD testing
- Worked with OEM engineering team to analyze test data & confirm system performance

#### The Result

- Continuing delivery of high-volume, high-mix sets with uncompromised performance



## AWARDS

Photonics Circle of Excellence Award, 2-time winner

Rochester Top 100 Fastest Growing Companies Award, 2-time winner

PRISM Award, 2-time finalist

Semrock, Inc manufactures optical filters that set the standard for the life science and analytical instrumentation industries, as well as optical filters and mirrors for laser and optical systems. OEM filters are manufactured in volume using ion-beam sputtering and proprietary volume manufacturing technology. All Semrock products are warrantied for five years.

Founded in September 2000, Semrock is based in Rochester, New York, a well-known world center for optics, and has sales offices throughout the United States. In October 2008 Semrock became a unit of IDEX Corporation. For additional information about Semrock, its products, and its team of international distributors, visit the company website at [www.semrock.com](http://www.semrock.com).

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