

# **Announcement**

## **Instruments/Machines – Optical Fiber Splicing Preparation Global Market Forecast & Analysis 2017-2027**

**Research Study Report Release Date: May 8, 2017**

This ElectroniCast report presents the findings of our extensive study of the use of selected instruments/machines (stripper, cleaver, and combination/multiple function) for optical fiber preparation prior to mechanical or fusion splicing.





**Instruments/Machines –  
Optical Fiber Splicing Preparation  
Global Market Forecast & Analysis  
2017-2027**

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**Report Description**

This ElectroniCast report presents the findings of our extensive study of the use of selected instruments/machines (stripper, cleaver, and combination/multiple function) for optical fiber preparation prior to mechanical or fusion splicing.

During the course of this project, ElectroniCast studied 29-companies involved in producing and/or selling optical fiber optic cleavers or strippers. We also investigated 40-US Patents directly related to fiber optic cleavers or strippers used in optical fiber preparation processing. This report provides a thorough presentation of the different instrument/machine types and techniques currently used to perform all the steps required to prepare optical fibers before splicing.

A cleave in an optical fiber is a deliberate, controlled break, intended to create a perfectly flat/smooth end-face, perpendicular or angle to the longitudinal axis of the fiber. The process of cleaving an optical fiber forms one of the steps in the preparation for a fiber splice operation regardless of the subsequent splice being a fusion splice or a mechanical splice; the other steps in the preparation being those of stripping and fiber alignment. A good cleave is required for a successful low loss splice of an optical fiber, often it is the case that fibers spliced by identical methods tend to have different losses, this difference can often be attributed to the quality of their initial cleaves.

In a fiber optic cable, a buffer coating is one type of component used to encapsulate one or more optical fibers for the purpose of providing such functions as mechanical isolation, protection from physical damage and fiber

identification. The buffer may take the form of a miniature conduit, contained within the cable and called a "loose buffer", or "loose buffer tube". A loose buffer may contain more than one fiber, and sometimes contains a lubricating gel. A "tight buffer" consists of a polymer coating in intimate contact with the primary coating applied to the fiber during manufacture.

Fiber optic stripping removes the protective polymer coating around optical fiber in preparation for fusion splicing. The splicing process begins by preparing both fiber ends for fusion, which requires that all protective coating is removed or stripped from the ends of each fiber. Fiber optical stripping can be done using a special stripping and preparation unit that uses thermal, chemicals, plasma or blades to remove the coating. There are also mechanical tools used for stripping fiber, which are similar to wire copper strippers.

This ElectroniCast study quantifies the use (consumption) of selected instruments/ machines (stripper, cleaver, and combination/multiple function) for optical fiber preparation prior to mechanical or fusion splicing. The instrument/ machine categories are segmented further by the weight of the device. The average selling price differences between the different types of instruments/ machines varies. Fiber optic cleaver and stripper product categories are segmented as shown in Table 1.

**Table 1**  
**Instrument/Machine – Optical Fiber Splicing Preparation Market Forecast**  
**Product Category List**

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Strippers (Instrument/Machine)

Bench Top / Portable (weight: 0.5 kg, but less than 8 kg)

Handheld or Lightweight (weight: less than 0.5 kg)

Cleavers (Instrument/Machine)

Bench Top / Portable (weight: 0.5 kg, but less than 8 kg)

Handheld or Lightweight (weight: less than 0.5 kg)

Combination (Cleaver/Stripper – Instrument/Machine)

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Not Included – Items not Included in the market forecast data:

- Cleaver or stripper functions, which are integrated (non-detachable) with other device/equipment such as a fusion splice machine
- Equipment having a total weight of more than 8 kilograms (kg)
- Stripper / Cleaver Tools: (shears, nippers, scissors, and "Pen" Scribes)

This report provides the 2017-2027 market forecast and analysis of the consumption value of the selected instrument/machine, segmented into the following geographic regions:

- America
- Europe, Middle East, Africa (EMEA)
- Asia Pacific Region (APAC)

This report provides the consumption by the following functions:

- Value (US\$, million)
- Quantity (number/units in thousands)
- Average Selling Prices (ASP \$, each)

The value is determined by multiplying the number of units by the average selling price. The average selling prices are based on the price of the instrument/machine at the initial factory level.

Also, the consumption values presented in the market forecast are based on the geographic location/region of the initial use of the instrument/machine. For example, an optical cleaver produced in Japan (APAC region) and then shipped to the United States (America region) and initially used (consumption) in the United States is shown in the market forecast data tables under the America region (not the APAC region).

The primary uses of optical cleavers are in the optical fiber preparation process at the original equipment manufacturer (OEM) producing components and devices, as well as in mechanical splice- and fusion splice-based field-installable optical fiber connectors, mechanical splices and fusion splices.

## **Information Base for the Market Forecast**

**Primary Research** This study is based on analysis of information obtained continually since January 2015 through the beginning of May 2018. During this period, ElectroniCast analysts performed interviews with authoritative and representative individuals in the fiber optics industry plus telecommunications, datacom, military/aerospace and other communication industries, instrumentation/laboratory – R&D and factory/manufacturing, from the standpoint of both suppliers and users of fiber optic connectors, mechanical splices, fusion splice, cleavers and strippers. The interviews were conducted principally with:

- Engineers, marketing personnel and management at manufacturers of fiber optic termination devices – strippers/cleavers, fusion splice equipment, mechanical splice, connectors, transceivers, as well as laser diodes and photodiodes, application-specific ICs, packages, ferrules and cables, substrate materials, optical waveguide and other components used in the fabrication of optoelectronic transceivers, cable assemblies and installation apparatus
- Design group leaders, engineers, marketing personnel and market planners at major users and potential users of cable, cable assemblies, connectors, installation apparatus, passive devices and transceivers, such as telecommunication transmission, switching and distribution equipment producers, data communications equipment producers (switches, hubs, routers), computer and workstation producers, weapon system, aircraft and spacecraft electronic equipment producers, optical instrumentation system producers and others
- Other industry experts, including those focused on standards activities, trade associations, and investments.

The interviews covered issues of technology, R&D support, pricing, contract size, reliability, documentation, installation/maintenance crafts, standards, supplier competition and other topics. Customers also were interviewed, to obtain their estimates of quantities received and average prices paid, as a crosscheck of vendor estimates. Customer estimates of historical and expected near term future growth of their application are obtained. Their views of use of new technology products were obtained.

The analyst then considered customer expectations of near term growth in their application, plus forecasted economic payback of investment, technology trends and changes in government regulations in each geographical region, to derive estimated growth rates of quantity and price of each product subset in each application. These forecasted growth rates are combined with the estimated baseline data to obtain the long-range forecasts at the lowest detailed level of each product and application.

Secondary Research A full review of published information was also performed to supplement information obtained through interviews. The following sources were reviewed:

- Professional technical journals and papers
- Trade press articles
- Technical conference proceedings
- Product literature
- Company profile and financial information
- Additional information based on previous ElectroniCast market studies
- Personal knowledge of the research team.

In analyzing and forecasting the complexities of the world region markets for these instrument/machines and optical interconnect products, it is essential that the market research team have a good and a deep understanding of the technology and of the industry. ElectroniCast members who participated in this report were qualified.

Bottom-up Methodology ElectroniCast forecasts are developed initially at the lowest detail level, and then summed to successively higher levels. The background market research focuses on the amount of each type of product used in each application in the base year (2017), and the prices paid at the first transaction from the manufacturer. This forms the base year data. ElectroniCast analysts then forecast the growth rates in component quantity use in each application, along with price trends, based on competitive, economic and technology forecast trends, and apply these to derive long term forecasts at the lowest application levels. The usage growth rate forecasts depend heavily on analysis of overall end user trends toward optical communication equipment usage and economic payback.

Cross-Correlation Increases Accuracy The quantities of fiber optic cleavers, strippers, fusion splice devices/equipment, fiber cable, connectors, transceivers, transport terminals, optical add/drop MUX, photonic switches and other products used in a particular application are interrelated. Since ElectroniCast conducts annual analysis and forecast updates in each fiber optic related product field, accurate current quantity estimates in each application are part of this corporate database. These quantities are cross-correlated as a “sanity check.”

ElectroniCast, each year since 1985, has conducted extensive research and updated our multiple-client forecasts of each fiber optic component category. As technology and applications have advanced, the number of component subsets covered by the forecasts has expanded impressively.

## **About ElectroniCast**

ElectroniCast, founded in 1981, specializes in forecasting technology and global market trends in fiber optics communication components and devices, as well providing market data on light emitting diodes used in lighting.

As an independent consultancy we offer multi-client and custom market research studies to the world's leading companies based on comprehensive, in- depth analysis of quantitative and qualitative factors. This includes technology forecasting, markets and applications forecasting, strategic planning, competitive analysis, customer-satisfaction surveys and marketing/sales consultation. ElectroniCast, founded as a technology-based independent consulting firm, meets the information needs of the investment community, industry planners and related suppliers.

## **Proprietary Statement**

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- 2.3.1 Instrument/Machine Fiber Cleaver Global Forecast Bench-top vs Handheld (\$, Million)
- 2.3.2 Instrument/Machine Fiber Cleaver Global Forecast Bench-top vs Handheld (Quantity)
- 2.3.3 Instrument/Machine Fiber Cleaver Global Forecast Bench-top vs Handheld (Avg. Price)
- 2.3.4 Instrument/Machine Fiber Cleaver America Forecast Bench-top vs Handheld (\$, Million)
- 2.3.5 Instrument/Machine Fiber Cleaver America Forecast Bench-top vs Handheld (Quantity)
- 2.3.6 Instrument/Machine Fiber Cleaver America Forecast Bench-top vs Handheld (Avg. Price)
- 2.3.7 Instrument/Machine Fiber Cleaver EMEA Forecast Bench-top vs Handheld (\$, Million)
- 2.3.8 Instrument/Machine Fiber Cleaver EMEA Forecast Bench-top vs Handheld (Quantity)
- 2.3.9 Instrument/Machine Fiber Cleaver EMEA Forecast Bench-top vs Handheld (Avg. Price)
- 2.3.10 Instrument/Machine Fiber Cleaver APAC Forecast Bench-top vs Handheld (\$, Million)
- 2.3.11 Instrument/Machine Fiber Cleaver APAC Forecast Bench-top vs Handheld (Quantity)
- 2.3.12 Instrument/Machine Fiber Cleaver APAC Forecast Bench-top vs Handheld (Avg. Price)
- 4.1.1 Specifications: AutoCleaver for Large Diameter Fibers
- 4.1.2 Specifications: One Step Fiber Cleaver
- 4.2.1 Instruments/Machines - Optical Fiber Splicing Preparation Selected Manufacturers  
Estimated Global Market Shares (2017)
- 8.1.1 Fiber Optic Cleaver and Stripper Market Forecast, Product Category List

### **Addendum**

#### **Market Forecast Data Base (2017-2027) – Excel Spreadsheets:**

- Global
- America
- EMEA
- APAC

#### **Market Forecast Data Charts – PowerPoint**