



GORE® High Flex Cables

FOR SEMICONDUCTOR APPLICATIONS

Technical Note —
Capabilities Overview

Excellent Signal Transmission with Proven Flex Life Performance

In today's semiconductor industry, cables are required to move faster with high flex life performance while delivering reliable signal transmission to meet new video interface protocols in automated equipment. As cables move, flex, and rub against cable carriers, the materials used in the construction often shed particles, outgas and create an electrostatic discharge that can contaminate a cleanroom or damage components. Therefore, cables and materials need to be durable to withstand these complex environments, last longer to reduce downtime and maintenance costs.

Certified for ISO Class 1 Cleanrooms and vacuum environments, GORE® High Flex Cables provide a cost-effective cable management system in applications where high flex reliability and excellent signal integrity are critical. With a proven flex life greater than 10 million cycles at a 50 millimeter bend radius, these cables are easy to install, improve reliability, and decrease downtime. The unique construction of these cables delivers a high flex life at a small bend radius without compromising signal integrity — reliable performance that cannot be matched.

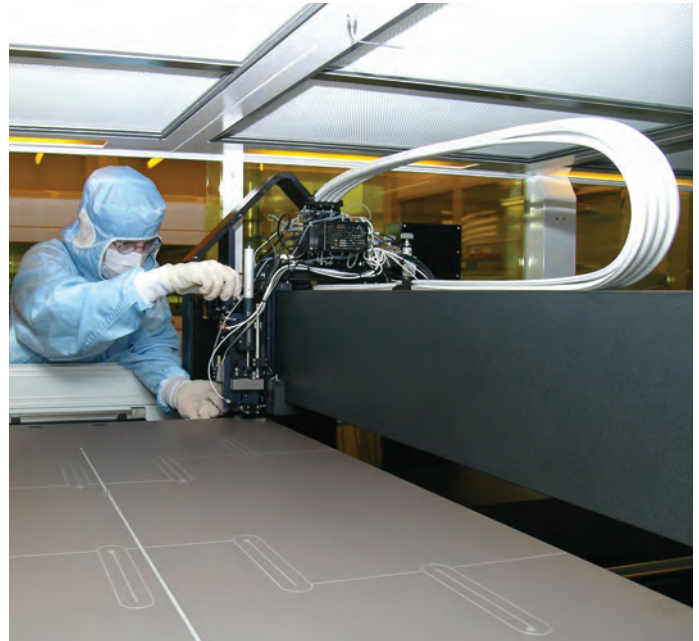
CLEANROOM APPLICATIONS

GORE® High Flex Cables can be reliably used in cleanroom environments that require low particulation. Using the calculations defined in VDI Guideline 2083 and ISO 14644-1, the Fraunhofer Institute in Germany determined these cables have less than 0.1 percent probability of emitting particulates. GORE® High Flex Cables maintain low particulation levels for repeated flexing in cable carriers. Outgassing is also eliminated because of the inert characteristics of the insulation materials.

Complete details on the Fraunhofer Institute's study are available at gore.com/particulation.

VACUUM APPLICATIONS

Requirements for higher integration on chips make it necessary to use light sources such as extreme ultraviolet or electron beam for lithography and related processes that use extremely short wavelength for pattern generation. This kind of light is absorbed in the general atmosphere, so it requires a vacuum environment with parabolic mirrors to focus the light beam that creates nanometer-level circuitry. This demanding environment requires cables engineered with specialized polymer materials that eliminate the concern of contamination from hydrocarbons (CxHy) and water (H₂O) in the processing chamber.



CAPABILITIES OF GORE® HIGH FLEX CABLES

- Proven flex life greater than 10 million cycles for long service life (up to several hundreds million cycles with specially designed constructions)
- Reliable signal transmission in challenging cleanroom environments
- No particulation, outgassing, or electrostatic discharge due to low-friction, chemically inert materials
- Easy installation due to lightweight cables with a tight bend radius
- Decrease maintenance, downtime, and total cost over the equipment lifecycle
- Eliminate cable carriers altogether with self-supporting cables (**GORE® Trackless Cables**)

GORE® High Flex Cables are the ideal cable choice for this environment because they are constructed with a very flexible, low outgassing polymer. Independent tests have proven that these cables consistently have the lowest possible outgassing values of water and hydrocarbons in a vacuum.



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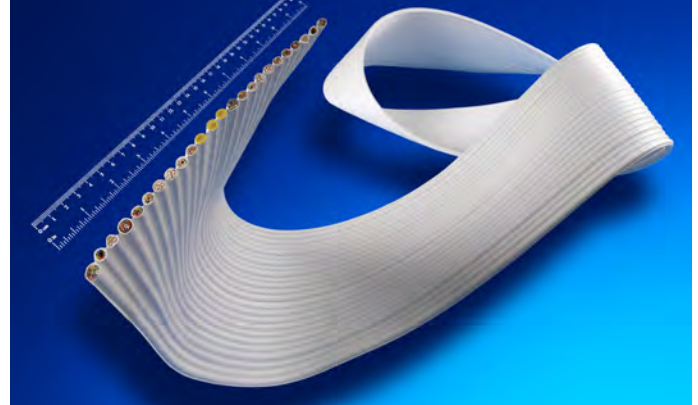
LOW-CHARGING APPLICATIONS*

Semiconductor and end-user devices are exposed to electrostatic discharge caused by materials that rub against system components in cleanroom automation applications. This type of discharge can permanently damage these sensitive electronics and lead to failure.

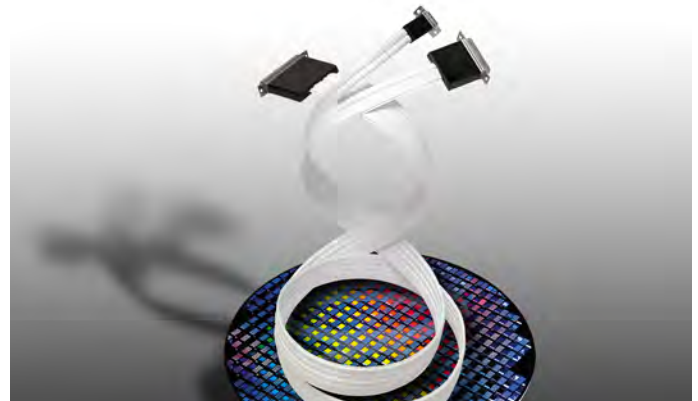
GORE® High Flex Cables for low-charging applications protect against electrostatic discharge in the static dissipative range. They prevent potential surface buildup from materials used in these complex environments while maintaining the lowest particulation levels. In addition, these cables are easy to clean and resistant to commonly used industrial chemicals such as isopropyl alcohol (IPA).

IMPROVED CABLE MANAGEMENT WITH GORE MATERIALS

The flat construction of GORE® High Flex Cables eliminates the need for dividers and shelves in cable carriers, which decreases the total weight of the cable system. The lightweight expanded polytetrafluoroethylene (ePTFE) used in jacket constructions is 1/2 to 1/3 the thickness of most round cable jackets and meets UL requirements for safety and flame resistance. Therefore, a smaller cable carrier can often be used — or even eliminated completely (**GORE® Trackless Cables**) — further reducing the overall cost of the moving cable system.



GORE® High Flex Flat Cables



GORE® High Flex Flat Cables



GORE® High Flex Cables for Low-Charging Applications*



GORE® High Flex Flat Cables for Vacuum Applications

* Prototype currently under development

NOTICE — USE RESTRICTIONS APPLY

Not for use in food, drug, cosmetic or medical device manufacturing, processing, or packaging operations.