



3M Science.
Applied to Life.™

3M Medical Materials
and Technologies

Quality materials. Trusted expertise.

3M is your trusted source
of quality healthcare
components for design-in
solutions to enhance
and save lives.

From initial design through production, we put our medical industry expertise and broad technology portfolio to work for you – helping you bring the next generation of medical devices to life.



Technology with a personal touch

How do you choose the best way to attach one substrate to another — especially if that “other” is a human being? How can you make wearable medical devices smaller and more flexible, so patients can be monitored from the comfort of their own homes? How can you improve the speed and accuracy of diagnostic devices?

These are questions best answered while your device is still on the drawing board. And that’s where 3M can help.

We offer a wide range of medical-grade materials and components to help you design and build more reliable, innovative and feature-rich medical devices. By bringing in 3M at the product concept stage, you can take advantage of our expertise to potentially speed up your design process – with solutions that can help improve device reliability, enhance performance and reduce costs. At the same time, you gain access to 3M’s entire technology portfolio to expand your design options, and resources that include manufacturing guidance, global supply chain capabilities, product testing and clinical support. Whatever product development stage you’re at, we’re ready to help you succeed – by delivering great science with a personal touch.

Imagine the possibilities.

Medical

Biomedical,
Electrodes &
Iontophoresis

Microfluidics

Surgical

Ostomy

Retail

Definitions of
Technologies
& Custom
Options



Your trusted source for "design-in" solutions

For over 50 years, 3M has been a leader in the health care industry. During that time, our advanced technologies have contributed to the creation of more than 10,000 new health care products worldwide. We supply the medical device manufacturing, design and supply industries with a carefully selected line of medical grade tapes, coatings and adhesive technologies, semi-finished components and selected bulk supplies of 3M branded products.

At 3M, great products are just the beginning

- ▶ Global technical support and customization facilities
- ▶ Fast, responsive sampling service
- ▶ Flexible order quantities
- ▶ 50+ years of health care expertise
- ▶ Confidential partnering and dedicated account manager

Our care pathways

Medical devices incorporating 3M materials and technologies are typically used in one or more of these care pathways:

- Continuous Health Monitoring
- Diabetes Management
- Medical Device Development



Look for this symbol to help find solutions optimized for your application.



Medical

Device Components

For over 50 years, our medical-grade adhesive tape and film components have been trusted by hospitals and clinics around the world for applications ranging from professional wound care dressings to device attachments and strappings.

Our experts can help you select the best options for your design, from “skin-friendly” materials to aggressive adhesives used in the actual construction of your device. Whatever product development stage you’re at, we’re ready to help you succeed – with solutions that can help improve device reliability, enhance performance and reduce costs.

Attributes to Consider

- ▶ Gentle or aggressive adhesion
- ▶ Wear duration
- ▶ Repeat use
- ▶ Breathable
- ▶ Conformable
- ▶ Printable
- ▶ Hydrophilic or hydrophobic
- ▶ Color
- ▶ Sterilization requirements
- ▶ Release liner characteristics

Nonwoven Tapes

Provide excellent conformability and breathability for extended wear applications or therapeutic devices. Printable options are available to display your brand.

Film Tapes

A wide variety of choices to create the appearance you desire – with the adhesion you require. Tapes in this category range from breathable to occlusive and gentle to aggressive adhesion in both single- and double-coated versions. Printable options are available.

Foam Tapes

A soft, cushioning yet conformable alternative to film and nonwoven tapes. Being of thicker caliper, foam tapes allow for easy attachment to flanges or skin. PVC foams are more conformable than polyethylene foams. Both are available in multiple colors.

Hydrocolloid Adhesives

The best option in skin-friendly attachment. Hydrocolloid adhesives are gentle to the skin over longer wear durations, provide skin hydration, and easily release from the skin. Due to their thickness, they also provide a comfortable cushioning effect.

Film & Accessories

We offer vapor barrier films, hydrophilic films for liquid transport, release liners and plastic coated wire tapes.

Applicable Technology:

- ▶ Nonwoven & Woven Single-Coated Tapes
- ▶ Absorbent Materials
- ▶ Double-Coated Tapes & Transfer Adhesives
- ▶ Hydrocolloid Tapes
- ▶ Film Single-Coated Tapes
- ▶ Foam Single-Coated Tapes
- ▶ Closure Products
- ▶ Specialty Films & Release Liners



Biomedical, Electrodes & Iontophoresis

Device Components

We can help you design and manufacture therapeutic and diagnostic “stick-to-skin” devices for a wide variety of wear conditions.

Our tapes can be used for securing instruments, as a “stick-to-skin” covering, or as inner layers in the construction of your device. We also offer conductive adhesives for specialty applications; ask your 3M representative for details.

Electrodes & Grounding Pads

We can help you select materials for your particular application from our wide range of electrode backing options. When choosing an adhesive, consider attributes such as conformability, breathability, wear duration, and gentle (infants or elderly) vs. aggressive adhesion (emergency or moist environments). Also ask about our conductive adhesives.

Iontophoresis

We offer plasticizer-free polyethylene foam tapes as well as highly conformable and soft PVC foam tapes. Nonwoven tapes also provide an excellent alternative.

Pulse Oximetry

Conformability and breathability are key considerations for oximeter devices. Our nonwoven, foam and perforated film tapes are well suited for these applications.

Diagnostic Instrument Securement

Nonwoven and film tapes provide excellent shear and tensile properties to secure your device to patients’ skin.

Construction Aids

Our double-coated tapes and transfer adhesives give you more freedom of design:

▶ **Nonwoven Tapes**

Excellent conformability and breathability. Printable options are available to display your brand.

▶ **Film Tapes**

A wide variety of choices to create the appearance you desire. Tapes in this category range from breathable to occlusive and from gentle to aggressive adhesion. Printable options are also available.

▶ **Foam Tapes**

Provide a soft, cushioned backing. The thicker caliper allows for easy application.

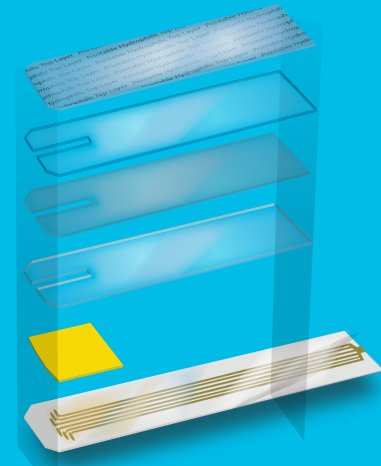


Continuous Health Monitoring Diabetes Management Medical Device Development



Applicable Technology:

- ▶ Nonwoven & Woven Single-Coated Tapes
- ▶ Film Single-Coated Tapes
- ▶ Hydrocolloid Tapes
- ▶ Double-Coated Tapes & Transfer Adhesives
- ▶ Foam Single-Coated Tapes
- ▶ Release Liners



Microfluidic

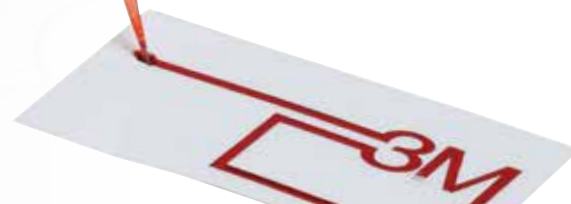
Device Components

We offer a broad portfolio of tapes and films to help you design and manufacture diagnostic consumables and devices.

Typical uses include construction of blood glucose strips, lateral flow assays and other microfluidic consumables and devices used for clinical, molecular and immunoassay diagnostics.

3M™ Diagnostic Tapes are made with carefully selected adhesive systems that minimize the potential for chemical or optical interference during use or analysis. 3M Diagnostic Tapes are available with a variety of backing materials, allowing a wide range of flexibility in matching the right tape to your specific processing and design needs.

3M™ Hydrophilic Polyester Films have a special coating for fast and effective spreading of a liquid sample. The treated films provide consistency in sample thickness and flow rate, directing the proper volume of fluid to the desired location within the device – and helping to ensure an accurate reading.

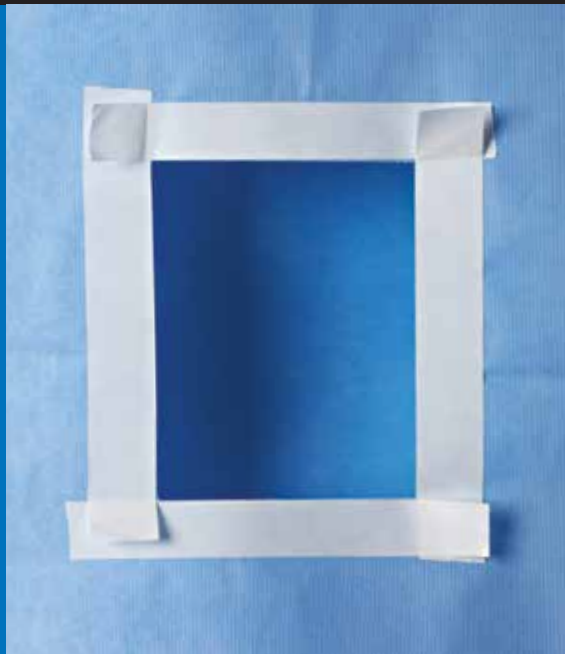
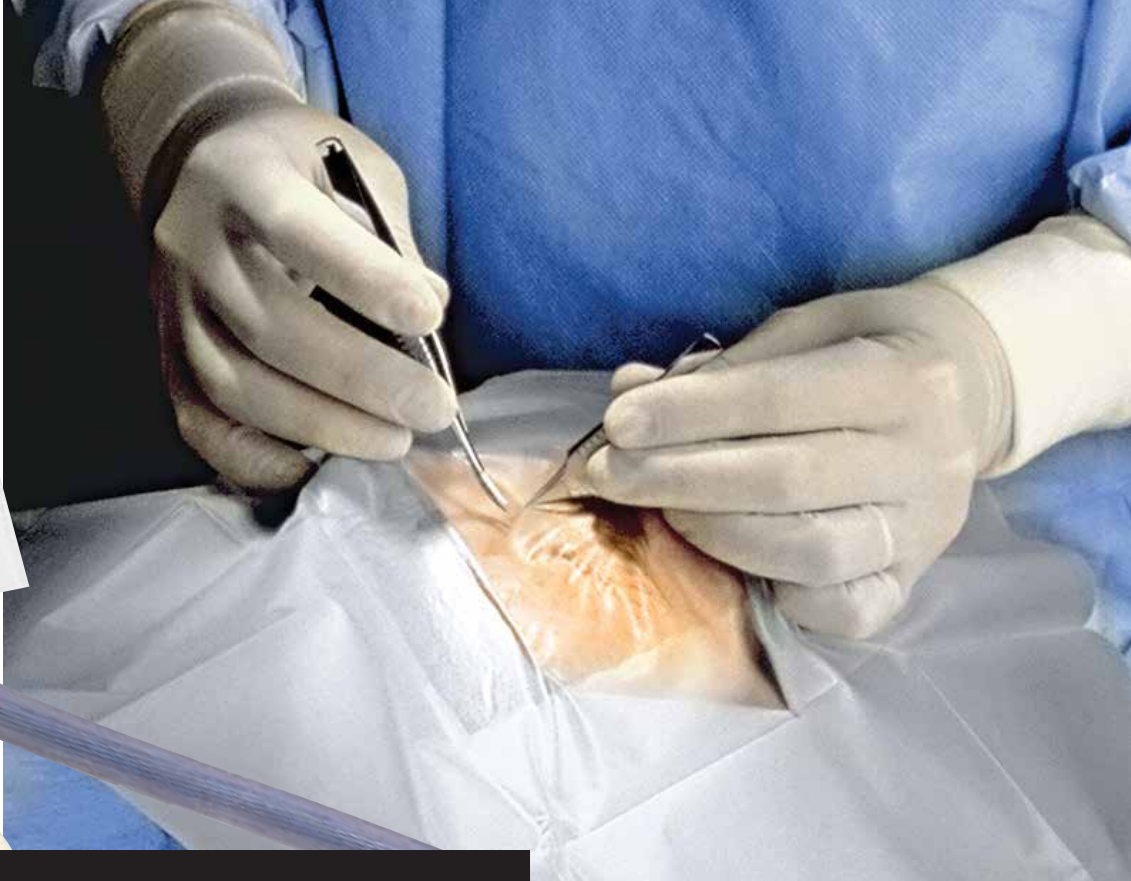




Continuous Health Monitoring Diabetes Management

Applicable Technology:

- ▶ Hydrophilic Films
- ▶ Single-Coated Tapes
- ▶ Heatsealable Film
- ▶ Double-Coated Tapes & Transfer Adhesives



Surgical

Device Components

From surgical drapes, gowns and face shields to tube organizers and fasteners, the disposable components used within the operating arena must adhere to high standards of quality and performance. We're here to help you design and manufacture devices that provide a high level of patient safety, comfort and protection – while helping you maximize the return on your investment.



Applicable Technology:

- ▶ Double-Coated Tapes & Transfer Adhesives
- ▶ Closure Products
- ▶ Specialty Films
- ▶ Nonwoven & Woven Single-Coated Tapes
- ▶ Film Single-Coated Tapes
- ▶ Hydrocolloid Tapes
- ▶ Foam Single-Coated Tapes



Medical Device Development

We understand the unique adhesive and tape requirements for the surgical device market. Our adhesives and tapes are designed to be “skin-friendly” for applications where the devices will be attached to patients. These tapes adhere well to skin, but remove gently and completely. We also offer tapes designed for device construction applications requiring strong adhesion to a wide variety of substrates. Some of our newer double-coated tapes feature a “skin-friendly” adhesive on one side and an aggressive construction adhesive on the other side – giving you the best of both worlds.

We specialize in customizing products to meet your unique needs. Using a wide variety of carriers, we can tailor certain properties to your specifications, such as tensile strength, conformability and even breathability. We offer custom slitting and die cutting, slit and extended liners, printed and other custom liners, and even custom formulated adhesives. We also welcome inquiries on new products, and we can draw on the broad 3M technology platform to develop new solutions to fit your needs.



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Your collection devices for ostomy and continence applications make an important contribution to patients' quality of life.

We can help you design and manufacture these devices with our extensive product line of "skin-friendly" components for securing devices and protecting patients' skin.

Securement Components

We offer a wide variety of choices in secural tape, many of which can be attached to ostomy bags using common heat sealing techniques.

- ▶ **Nonwoven Tapes**

Provide excellent security, conformability and breathability for extended wear collection devices.

- ▶ **Film Tapes**

Secure adhesion with the added benefits of a translucent barrier film and the ability to easily clean the tape surface.

- ▶ **Foam Tapes**

A soft, cushioning and conformable alternative to film and nonwoven tapes. Being of thicker caliper, foam tapes allow for easy attachment to flanges or skin and easy handling by the user.

- ▶ **Hydrocolloid Adhesives**

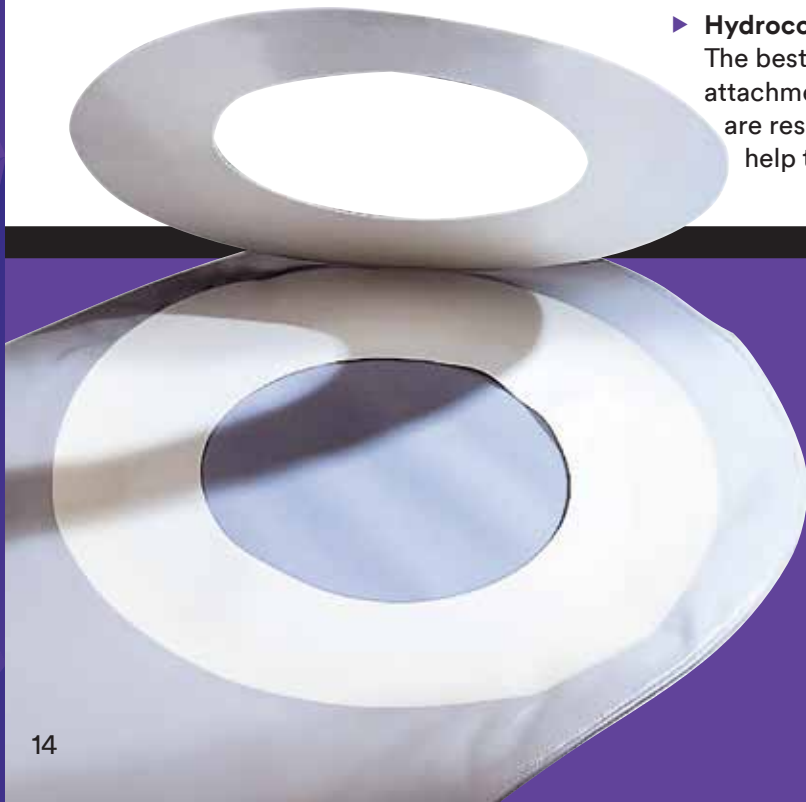
The best option in skin-friendly attachment. Hydrocolloid adhesives are resistant to body fluids and help to maintain skin health.

Pouch Closures

We give you a wide variety of options for patient adjustable closures for drainable pouches. Our comfortable, conformable Flexfoam closures offer security, simplicity and discretion to your patients. Flexform wire closures provide a similar, cost-effective solution. Both can be customized in color and length.

Construction Aids

Double-coated tapes and transfer adhesives allow you to build your own custom laminates using a wide variety of materials. We have double-coated tapes and transfer adhesives made for stick-to-skin, stick-to-device or both types of applications.



Ostomy

Device Components

Medical

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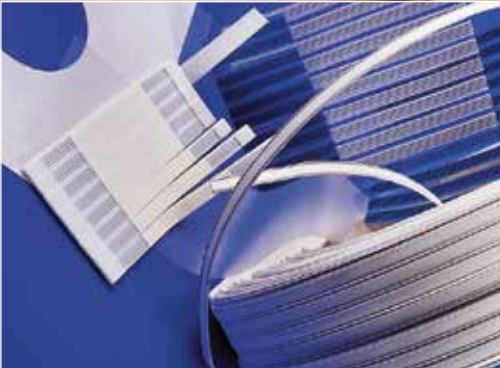
Microfluidics

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Medical Device Development

Applicable Technology:

- ▶ Nonwoven & Woven Single-Coated Tapes
- ▶ Film Single-Coated Tapes
- ▶ Barrier Films
- ▶ Hydrocolloid Tapes
- ▶ Double-Coated Tapes & Transfer Adhesives
- ▶ Foam Single-Coated Tapes
- ▶ Pouch Closures

Your ideas are endless – and we can help you bring them to life.

We offer a comprehensive portfolio of tape components for a wide array of retail applications.

Our experts take the time to understand your unique design requirements in order to select the best product to maximize the performance and value of your device – and help bring your idea to market.

Attributes to Consider

- ▶ Color
- ▶ Printable
- ▶ Wear duration
- ▶ Repeat use
- ▶ Conformable
- ▶ Breathable
- ▶ Gentle or aggressive adhesion
- ▶ Liner characteristics

Nonwoven Tapes

Excellent conformability and breathability for extended wear applications. Printable options are available to display your brand. Our customers have reported using these products in applications such as disposable bras, temporary tattoos and first aid dressings.

Film Tapes

A wide variety of choices to create the appearance you desire. Tapes in this category range from breathable to occlusive, with gentle to aggressive adhesion. Printable options are available.

Foam Tapes

A soft, cushioning yet conformable alternative to film and nonwoven tapes. Being of thicker caliper, foam tapes allow for easy attachment to flanges or skin. PVC foams are more conformable than polyethylene foams. Available in tan, ivory or blue.

Hydrocolloid Adhesives

The best option in skin-friendly attachment. Hydrocolloid adhesives are gentle to the skin over long wear durations and release from the skin easily. Due to their thickness, they also provide a comfortable cushioning effect.





Applicable Technology:

- ▶ Nonwoven & Woven Single-Coated Tapes
- ▶ Film Single-Coated Tapes
- ▶ Foam Single-Coated Tapes
- ▶ Hydrocolloid Tapes
- ▶ Double-Coated Tapes & Transfer Adhesives
- ▶ Closure Products
- ▶ Specialty Films & Release Liners



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Glossary of Terms: Adhesives & Tapes

Acrylic/Acrylate: A synthetic polymer with excellent aging characteristics that can be used as a component adhesive.

Adhesion: (Pressure Sensitive) A bond produced between a pressure sensitive adhesive and a surface.

Adhesion to Skin: A study to determine the degree of adhesion to skin of medical tapes or adhesives for up to 96 hours. Additionally, the amount of residue remaining on the skin after the material removal is assessed.

Adhesive: Any material which will hold two or more objects together solely by intimate surface contact.

Adhesive Transfer: The transfer of adhesive from its normal position on the tape to the surface to which the tape was attached, either during unwind or removal.

Backing: A relatively thin flexible material to which the adhesive is applied. Theoretically any material, which is reasonably flat, relatively thin and flexible, can be used as a tape backing. Sometimes referred to as **carrier**.

Backside: The uncoated side or side opposite the adhesive coating. For a double-coated tape, the side in contact with the liner after unwinding.

Conformability: The ability of tape to fit snugly or make essentially complete contact with the surface of an irregular object without creasing or folding.

Converting: The actual operation of changing a large roll of tape or backing into a finished product by slitting, short roll winding, die cutting, etc.

Faceside: The side of the backing on which the adhesive is coated. For a double-coated tape, the side first exposed after unwinding.

Double-Coated: The adhesive is applied on both sides of the backing, which serves principally as a carrier for the adhesive.

Film: Uniform, homogeneous, plastic webs.

Flexibility: The ability of a tape to be freely bent or flexed.

Foam: A soft, cushiony material formed by creating bubbles in base materials, such as natural or synthetic rubbers, or other elastomeric materials. Can be either closed cell or open cell (air passage).

Lamination: A combination of two or more materials, which function as one backing on web.

Liner: A paper or film with a release coating used to protect an adhesive from exposure before use.

Nonwoven Materials: Paper, tissues or synthetic (e.g. polyester) nonwoven fabrics.

Pressure Sensitive Adhesive: A term commonly used to designate a distinct category of adhesive tapes and adhesives, which are aggressively and permanently tacky at room temperature and firmly adhere to a variety of dissimilar surfaces upon mere contact without the need of more than finger or hand pressure.

Release Liner: A web or sheet of material covering the adhesive side of a tape. It is removed prior to application.

Single-Coated: The adhesive is applied to one side of the backing only.

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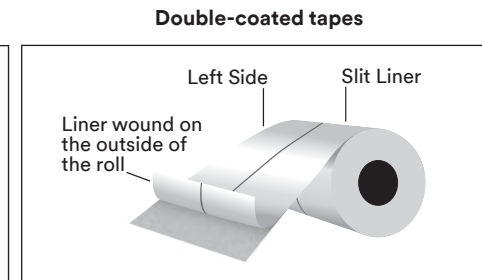
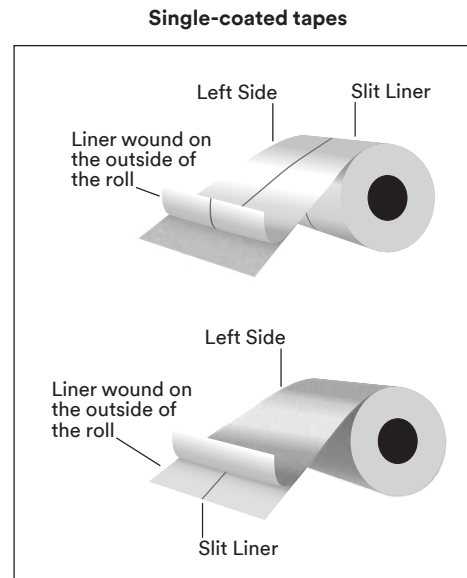
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As an added service to our customers, we offer custom slitting and die cutting of our tape products. We convert our tapes into widths and lengths to meet your specific requirements. We also can provide slit liners and/or extended liners on many of our tape products.

Slit Liner & Extended Liner Capabilities

Slit Liners (SL) –
liner is scored or slit through to tape

- ▶ Available on all products with a release liner except:
 - Transfer Adhesives 1504XL, 1524 and 1524A
 - Polyurethane Tapes & Film 9832F, 9833 and 9834
- ▶ Tolerance is $\pm 1/16$ " (± 1.5 mm)
- ▶ Standard maximum slit roll width is 24" (61 cm) and minimum slit width is 0.5" (1.27 cm)
- ▶ Slit (or score) must be a minimum of 1/8" (3 mm) from the roll edge
- ▶ Orders must include total number and location of slit(s) and distance from the left edge



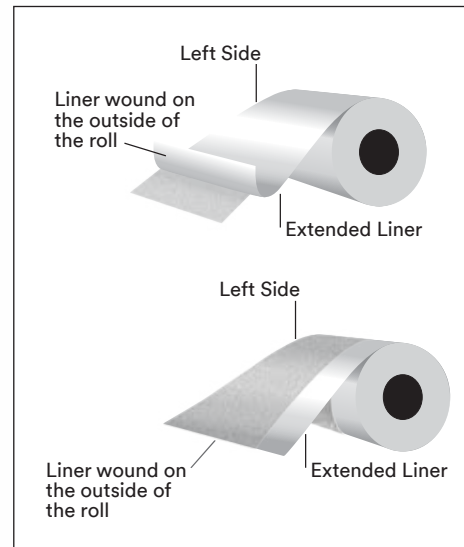
Custom Options

NOTE: Please be aware that there may be some restrictions on maximum roll length of any product slit less than 1" (25.4 mm) wide due to roll stability during handling.

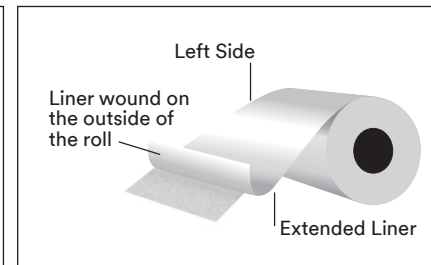
Extended Liners (EL) –
liner extends past edge(s)
of adhesive

- ▶ Available on all products with a release liner except:
 - Any foam tape
 - Transfer Adhesives 1524 and 1524A
- ▶ All other products have an EL minimum width of 1/8" (3 mm) and tolerance is $\pm 1/16"$ (± 1.5 mm)
- ▶ Standard maximum roll width is 24" (61 cm) and minimum slit width is 0.5" (1.27 cm)

Single-coated tapes



Double-coated tapes



Do you need a tape, adhesive or film product that isn't listed here?

In addition to our custom converting services, we also offer custom adhesive formulations, printed liners and more. Contact us with your inquiry, and we will work with you to develop a solution to fit your needs.

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Careful selection of quality materials during the concept stage can reduce the risk of delays late in the development process. With 3M, you can get technical, design-in expertise right from the start – making your materials selection process a whole lot easier.

Visit our website to learn more: 3M.com/MedTech

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