Selection & Use of Surgical Needles
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ETHICON Products needles are manufactured in a wide range of types, shapes, lengths and diameters. The choice of needle to be used must rest with the surgeon, and may take into account several factors such as the requirements of the specific procedure, the nature of the tissue to be sutured, the accessibility of the operative area, and the preferred techniques of each individual surgeon.

ETHICON Products needle range is now complimented by the very latest innovation - MultiPass*. This unique combination of bend-resistant material, intelligent geometry and tip to swage needle coating delivers needles that are sharper, stronger and offer better control for optimal outcomes.

Intelligent Geometry
The unique needle range includes exclusive point profiles such as PRIME Needles and CC Needles which provide excellent penetration and the ETHIGUARD Blunt Point Needle which is designed with safety in mind.

ETHALLOY* Needle Alloy
Premium needles are made from an alloy which is exclusive to ETHICON Products. This provides a needle which has superior resistance to bending and breaking.

Advanced Needle Coating
Advanced Needle Coating technology provides a new level of smoothness during tissue penetration.
ETHALLOY* Needle Alloy

Unique to ETHICON Products this material provides 40% more bend resistance compared to conventional needles.

▲ Offers a unique combination of strength and ductility
▲ More resistant to bending and breaking for greater surgical control
▲ Enables more accurate suture placement for optimal outcomes

Superior Resistance To Bending†

† Surgical yield is defined as the point at which the surgeon would first detect bending

Intelligent Geometry
A Unique Needle Range

**ETHIGUARD** Blunt Taper Point
Point Needles
- Improving safety

**BVNeedles**

**VISI-BLACK**
Needles
- Gentle separation of fibrous tissue
- Consistency pass after pass
- Visibility is their strength

**CC**
Needles
- Easy penetration of calcified coronary

**HEMO-SEAL**
Needle Sutures
- A fitting choice for vascular surgery

**MULTICURVE**
Needles
- For confined access procedures

**TAPERCUT**
Needles
- Easy penetration of dense tough tissue

**PRIME**
Needles
- Excellence in skin closure

**ETHICON**
Advanced needle coating

ETHICON Products’ MultiPass® Advanced Needle Coating technology provides a new level of smoothness during tissue penetration that must be experienced, to be appreciated.

- Maintains needle sharpness from start to finish over multiple passes
- Offers consistent needle penetration pass after pass and needle-to-needle
- Enhances needle control and placement
- Covers entire needle tip to swage for consistently smooth passage through tissue

Tip to swage coating
Anatomy of a Needle

Needle Point
- Needles can taper to a point or have cutting edges.

Taper Ratio
- Longer points for improved penetration.

Needle Body
- **Needle flat**: Flattened section for stability in the needle holder.
- **Ribs**: In larger needles there is a ribbed section to provide a secure grip.
- **Square Body**: Needles can also have a square body for increased strength.

Swage
- A hole is drilled into the end of the wire and the material is attached into this hole. For premium needles the needles are laser drilled which provides a smooth transition between needle and material thus reducing tissue trauma.
Needle Types

ETHICON Products needles can be arranged into groups according to the design of the point. The first group is Round Bodied needles - a group with many modified variants. The second group is Cutting needles which are used in areas of tough or dense tissue and for suturing skin. The third group is used mainly in ophthalmology and is of side cutting or spatulated point design.

Round Bodied

- Taper Point
- Taper Point plus
- ETHIGUARD* Blunt Point Needle
- Blunt Point
- CC Needle
- TAPERCUT

Cutting

- Reverse Cutting
- Conventional Cutting
- TROCAR Point

Ophthalmology

Needle Shape

The choice of needle shape is frequently governed by the accessibility of the tissue to be sutured, and normally the more confined the operative site the greater the curvature required. The basic shapes involved are:

- 1/4 Circle
- 3/8 Circle
- 1/2 Circle
- 5/8 Circle
- J Shape
- Compound Curve
- Straight
Round Bodied Needles

Round Bodied needles are designed to separate tissue fibres rather than cut them. They are used either for soft tissue or in situations where easy splitting of tissue fibres is possible. After the passage of the needle, the tissue closes tightly round the suture material, thereby forming a leak-proof suture line which is particularly vital in Intestinal and Cardio-vascular surgery.

Round Bodied needles are manufactured with different wire diameters according to the tissue to be sutured. For softer tissue such as bowel finer wire diameters can be used. Whereas for muscle or fascia heavier wire diameters are required.

TAPERPOINT Needle
This point profile is engineered to provide easy penetration of intended tissues. Forceps flats are formed in an area half way between the point and the attachment. Positioning the needle holder in this area confers extra stability on the needle being held, aiding precise placement of the sutures. Taper Point needles are available in a range of wire diameters and the finer diameters can be used for softer tissue in gastro-intestinal or vascular procedures whereas heavier diameters are required for tougher tissue such as muscle.

TAPERPOINT Plus
A modified point profile for some of our smaller round bodied intestinal type needles, typically for needles in the size range 20-30mm. In the modified profile, the tapered cross section immediately behind the tip has been flattened to an oval shape rather than a conventional round shape. This continues for several millimeters before merging into the conventional round bodied cross section. This design was developed to help facilitate improved seperation of tissue layers.

VISI - BLACK* Needle
These black needles have been designed to give outstanding visibility against tissue and where blood is present in the operating field. The slim Taper Point design of the VISI-BLACK* Needle brings improved penetration properties and minimises tissue trauma.

CONTROL RELEASE* Needle Sutures
1 The needle is held securely in the needle holder. Suture is grasped securely just below needle, pulling
2 The needle is released with a straight tug of the needleholder.
**ETHIGUARD* Blunt Point Needle**
The needles has been designed to minimise the risk of needle stick injury. The ETHIGUARD* Needle point is sharp enough to penetrate fascia and muscle but not skin. Virtually eliminating accidental glove puncture, the ETHIGUARD* Needle can also be used for suturing friable tissue such as the liver.

**Blunt Point Needle**
This needle has been designed for suturing extremely friable tissue such as the liver.

**CC Needle**
The unique point design of the CC Needle provides significantly improved penetration properties for the Cardiac / Vascular surgeon when suturing tough, calcified vessels. This is achieved with no increase in tissue trauma compared to the conventional round bodied needle. Squared body geometry, in addition to providing a stronger fine vascular needle, also means this needle is particularly secure in the needle holder.

**TAPERCUT* Needle**
This needle combines the initial penetration of a cutting needle with the minimised trauma of a round bodied needle. The cutting tip is limited to the point of the needle, which then tapers out to merge smoothly into a round cross section.
Cutting Needles - for Fibrous Tissue

Cutting needles are required wherever fibrous or dense tissue needs to be sutured.

Reverse Cutting Needle
The body of this needle is triangular in cross section, having the apex cutting edge on the outside of the needle curvature. This improves the strength of the needle and particularly increases its resistance to bending.

TROCAR POINT Needle
Based on the traditional TROCAR POINT, this needle has a strong cutting head which then merges into a robust round body. The design of the cutting head ensures powerful penetration, even when deep in dense tissue.
Conventional Cutting Needle

This needle has a triangular cross section with the apex of the triangle on the inside of the needle curvature. The effective cutting edges are restricted to the front section of the needle and merge into a triangulated body which continues for half the length of the needle.

Reverse Cutting Needle

The body of this needle is triangular in cross section, having the apex cutting edge on the outside of the needle curvature. This improves the strength of the needle and particularly increases its resistance to bending.

PRIME* Needle

PRIME* Needles are manufactured with an exclusive needle tip design.

The cross sectional geometry of the needle tip reduces the angles of the cutting edges which gives improved penetration and control.

A square body on the needle greatly increases needle strength and offers improved stability in the needle holder.

PRIME* Needles are available with either a reverse cutting or a conventional cutting profile.
Ophthalmic Needles

These fine needles are manufactured using a unique process which ensures extremely sharp cutting edges. The range includes spatulated designs for suturing specific layers of the eye in Anterior Segment surgery in addition to round bodied, cutting and TAPERCUT designs for specific ophthalmic and oculoplastic procedures.

CS-ULTIMA* Spatula Needle
This needle represents a dramatic change in ophthalmic needle design. Its concave spatula geometry requires considerably less force to penetrate corneal scleral tissue than existing needles. This results in much less disruption of the cornea and the real possibility of reduced post-operative suture related astigmatism.

ADVANCED MICRO-POINT*
Spatula Needle
Due to the ultra fine diameter of this needle, a new concept of design has been necessary. An extremely sharp cutting point has been merged into a square body to produce superb penetration characteristics. In addition, the square body greatly increases resistance to bending and gives much improved needle holder security, locking the needle at the correct angle for secure accurate suture placement.

MICRO-POINT*
Spatula Needle
This needle has a thin, flat profile which allows the needle to penetrate between the layers of scleral or corneal tissue.
**SPATULATED**

**Needle**
Similar in cross section to MICRO-POINT Spatula needles, this is designed for scleral suturing which requires stronger needles and where the elimination of cut out or cut down by a third edge is essential.

**MICRO-POINT**

**Reverse Cutting Needle**
The third cutting edge of this needle lies on the outside of its curvature, thereby eliminating the possibility of needle cut out during suture placement.
Use of Needle Holders

1. The needle holder should be carefully selected to match the size and strength of the needle to be used. The use of a needle holder larger than required can result in damage to the needle and in particular, distortion of the curvature.

2. The needle holder should be in good condition as worn jaws can result in needle rotation and instability in the needle holder. Nicks or defects in the needle holder jaws can also cause damage to the needle and loss of strength.

3. Needles should be grasped securely on the tip of the needle holder jaws.

4. Needles should only be held in the flatted area provided and should not be grasped on the attachment area or near to the needle point. Needles which are not flatted should be grasped for placement at a point approximately one third of the needle length from the butt. Excessive force should not be applied when gripping the needle, particularly with Tungsten Carbide jaw inserts, as this may damage the needle body and cause loss of strength or breakage.

Use of Surgical Needles

1. The force required to achieve passage of the needle through tissue should be applied in a direction following the curvature of the needle.

2. Care should be taken to match the size of the needle to the size of tissue bite required. The use of too small a needle for a given tissue bite can lead to bending.

3. Should the placement of the needle in tissue require to be readjusted, the needle should be removed and re-inserted. No attempt should be made to twist the needle in tissue.

4. The needles should normally be inserted separately into each side of the tissue to be approximated and should not be used to bridge a wound.