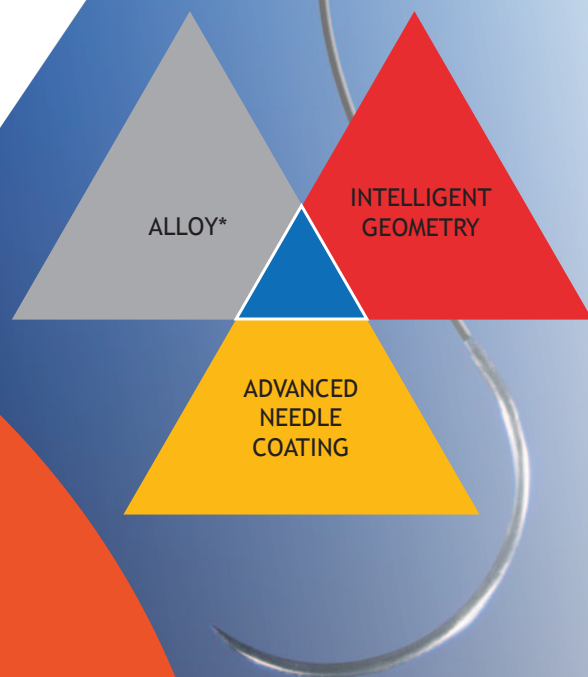
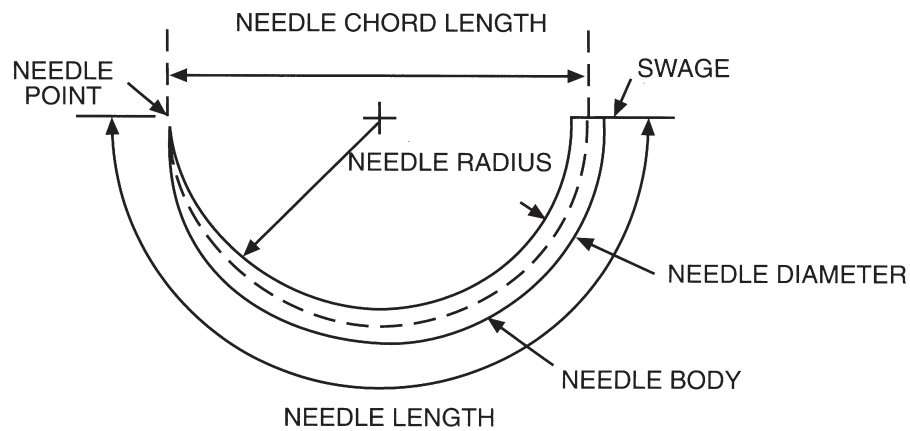


Selection and use of surgical needles



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

Flatted section for stability in the needle holder.



Ribs

In larger needles there is a ribbed section to provide a secure grip.



Square Body

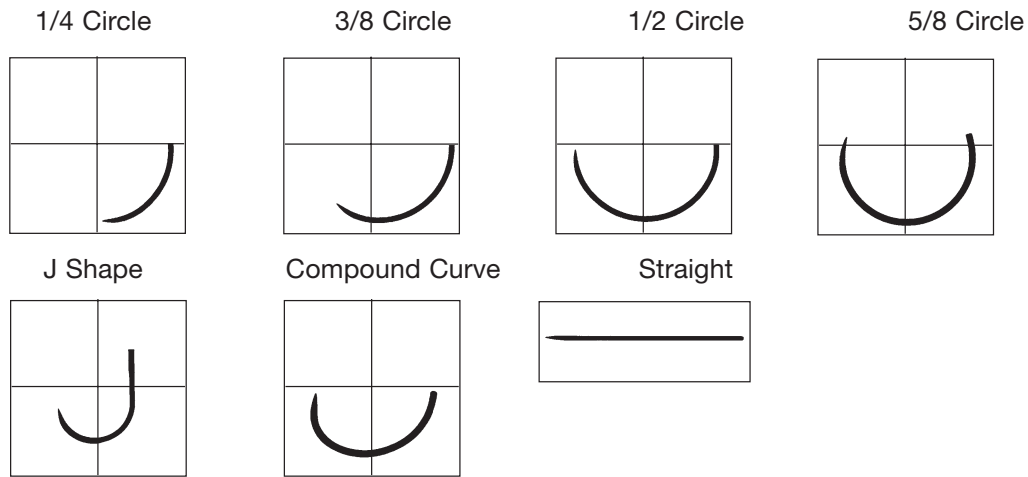
Needles can also have a square body for increased strength.

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 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:

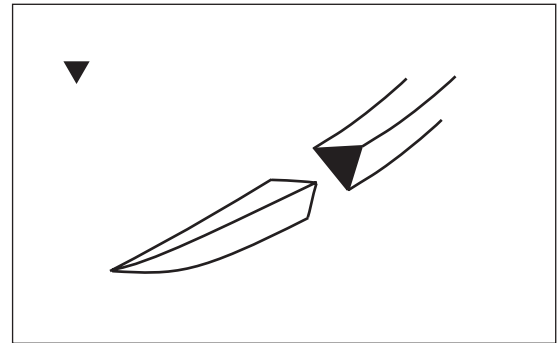


Cutting Needles - for Fibrous Tissue

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

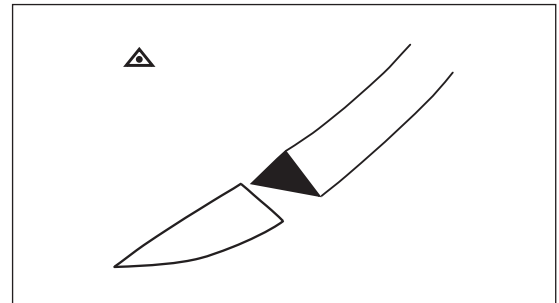
Reverse Cutting Needle

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.



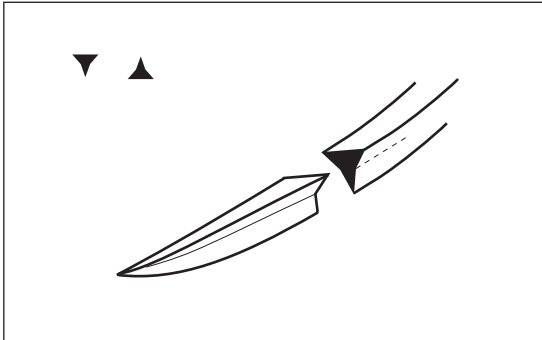
TROCAR POINT Needle

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.



Cutting Needles for Plastic and Cosmetic Surgery

PRIME and PRIME MULTIPASS needles

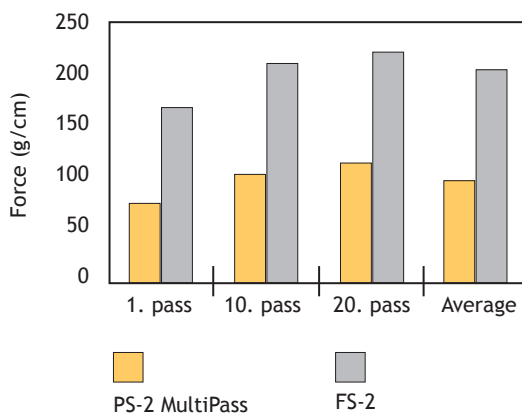


PRIME and PRIME MULTIPASS needles are manufactured with an exclusive needle tip design. The cross sectional geometry of the needle tip reduces the angles of the cutting edges which gives improved penetration and control.

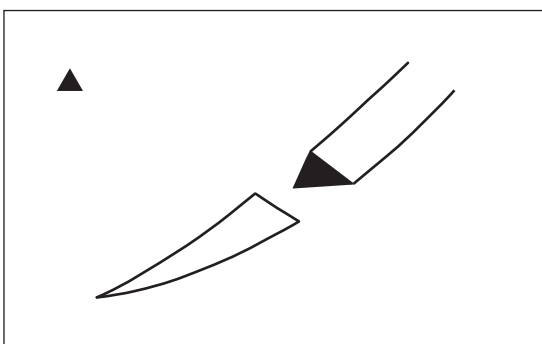
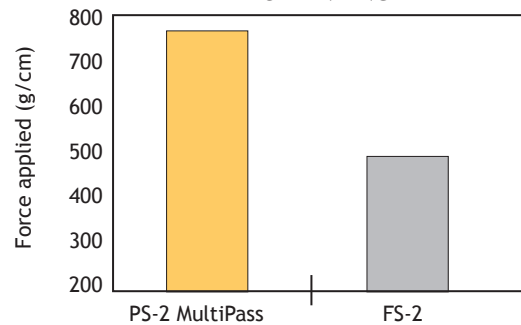
A square body on the needle greatly increases needle strength and offers improved stability in the needle holder. PRIME needles are available with either a reverse cutting or a conventional cutting profile.

PRIME MULTIPASS needles offer PRIME geometry and advanced MULTIPASS needle coating technology.

SUPERIOR EASE OF PENETRATION



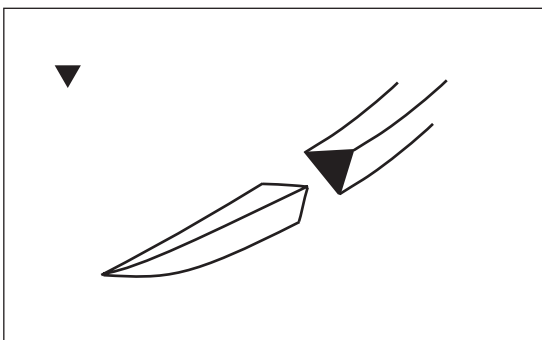
SUPERIOR RESISTANCE TO BENDING



Cutting Needles for Skin Closure

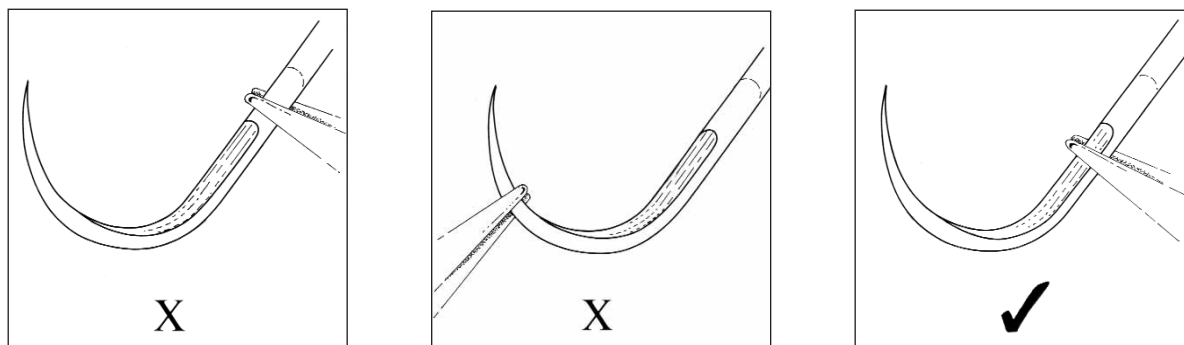
Conventional Cutting Needle

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.
















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 flattened area provided and should not be grasped on the attachment area or near to the needle point. Needles which are not flattened 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.

Needle Point Profiles

Needle Profile	New Graphic
Taper Point (Round Bodied)	
Taper Point Plus (modified point)	
ETHIGUARD Blunt Point Needle	
Blunt Point	
TAPERCUT Needle	
CC Needle	
TROCAR Point	
Conventional Cutting	
Reverse Cutting	
PRIME Needle Conventional Cutting	
PRIME Needle Reverse Cutting	
CS ULTIMA Spatula Needle	
Spatula	

Plus Antibacterial Sutures

ETHICON developed VICRYL* Plus, MONOCRYL* Plus and PDS* Plus Antibacterial Sutures in order to address the problem of Surgical Site Infections (SSIs).

ETHICON Plus Sutures contain IRGACARE* MP (triclosan), an antibacterial technology that helps inhibit bacterial colonization on the surface of the suture ¹.

Since 66% of infections are confined to the incision, use Plus Sutures as part of your SSI protocol to help prevent them ².

SUTURES
Plus
Antibacterial
Suture



IRGACARE* MP - The Antibacterial Component

ETHICON Plus Sutures, with IRGACARE* MP, provide the same wound healing, wound strength and tissue response as traditional sutures ³.

IRGACARE* MP, the purest form of triclosan, has a favorable safety profile spanning over 30 years ⁴. The safety of triclosan as the antibacterial agent in Plus Sutures has been well evaluated and confirmed. Over 150 million Plus Sutures have been distributed.

Triclosan is broken down and metabolized in the body. Triclosan is excreted in a neutralized, inactive form via the kidneys, posing no threat to the patient or the environment ⁴.

VICRYL* Plus, MONOCRYL* Plus and PDS* Plus Sutures with IRGACARE* MP are effective against the pathogens most commonly associated with SSIs ⁵:

- *Staphylococcus aureus*
- *Staphylococcus epidermidis*
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Methicillin-resistant *Staphylococcus epidermidis* (MRSE)

MONOCRYL* Plus and PDS* Plus Sutures are also effective against:

- *Escherichia coli*
- *Klebsiella pneumoniae*



*VICRYL Plus and another suture
in Staphylococcus aureus*

References:

- (1) Storch ML, Rothenburger SJ, Jacinto G. Experimental efficacy study of coated VICRYL* Plus antibacterial suture in guinea pigs challenged with *Staphylococcus aureus*. *Surg Infect.* 2004;5:281-288.
- (2) Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR; The Hospital Infection Control Practices Advisory Committee. Guideline for prevention of surgical infection, 1999. *Am J Infect Control.* 1999;27:97-134.
- (3) Storch M, Scalzo H, Van Lue S, Jacinto G. Physical and functional comparison of Coated VICRYL* Plus Antibacterial suture (coated polyglactin 910 suture with triclosan) with Coated VICRYL* suture (coated polyglactin 910 suture). *Surg Infect.* 2002;3(suppl 1):S89-S98.
- (4) Barbolt TA. Chemistry and safety of Triclosan, and its use as an antibacterial coating on VICRYL* Plus Antibacterial suture (coated polyglactin 910 with Triclosan). *Surg Infect.* 2002;3 (suppl 1):S45-S54.
- (5) Edmiston CE, Seabrook GR, Goheen MP, et al. Bacterial adherence to surgical sutures: Can antibacterial-coated sutures reduce the risk of microbial contamination? *J Am Coll Surg.* 2006;203:481-489.

	ABSORBABLE SUTURES	PHYSICAL CHARACTERISTICS	COLOR	REMAINING TENSILE STRENGTH (% of the original strength)					ABSORPTION RATE	KNOT TYING
				1 w.	2 w.	3 w.	4 w.	6 w.		
ABSORBABLE SUTURES	VICRYL® Rapide Polyglactin 910	Multifilament, coated	Violet Undyed	50% (5 days)	0% (10-14 days)				42 days	1=1=1=1
	MONOCRYL® Polyglactone 25	Monofilament	Violet Undyed	60% 50%	30% 20%				90 - 120 days	1=1=1=1**
	MONOCRYL® Plus Antibacterial Polyglactone 25									
	VICRYL® (6-0 and larger*) Polyglactin 910	Multifilament, coated	Violet / Undyed		75 %	50 %	25 %		56 - 70 days	2=1=1 / 1=1=1=1
	VICRYL® Plus Antibacterial Polyglactin 910									
NON-ABSORBABLE SUTURES	PDS®II (3-0 and larger*) Polydioxanone	Monofilament	Violet / Undyed		80 %		70 %	60 %	182 -238 days	1=1=1=1**
	PDS® Plus Antibacterial									
	PROLENE® Polypropylene	Monofilament	Blue / Undyed							1=1=1=1/ 2=1=1**
	PRONOVA® Poly(hexafluoropropylene-VDF)	Monofilament	Blue							1=1=1=1/ 2=1=1**
	ETHIBOND® Polyester	Multifilament, coated	Green / White							2=1=1 / 1=1=1=1*
NON-ABSORBABLE SUTURES	MERSILENE® Polyester	Multifilament	Green / White							2=1=1
	ETHILON® Polyamide	Monofilament	Black / Blue							1=1=1=1/ 2=1=1**
	NUROLON® Polyamide	Multifilament, coated	Black							2=1=1
	SILK	Multifilament	Black/White/Blue							1=1=1=1
	STEEL	Monofilament / Multifilament	Undyed							1=1=1=1

* = Check the catalog for information on thinner sizes

** = Additional throws may be particularly appropriate when knotting any monofilament material