

WOUND CLOSURE IN-SERVICE

Month __, 20__

Title

Presenter name

ETHICON, INC.
a **Johnson & Johnson** company

SUTURES

Surgical sutures since 1887

NEEDLES

NEEDLES OVERVIEW
ADVANCED NEEDLE DESIGN
NEEDLES BY SPECIALTY

NEEDLES OVERVIEW

IDEAL NEEDLE

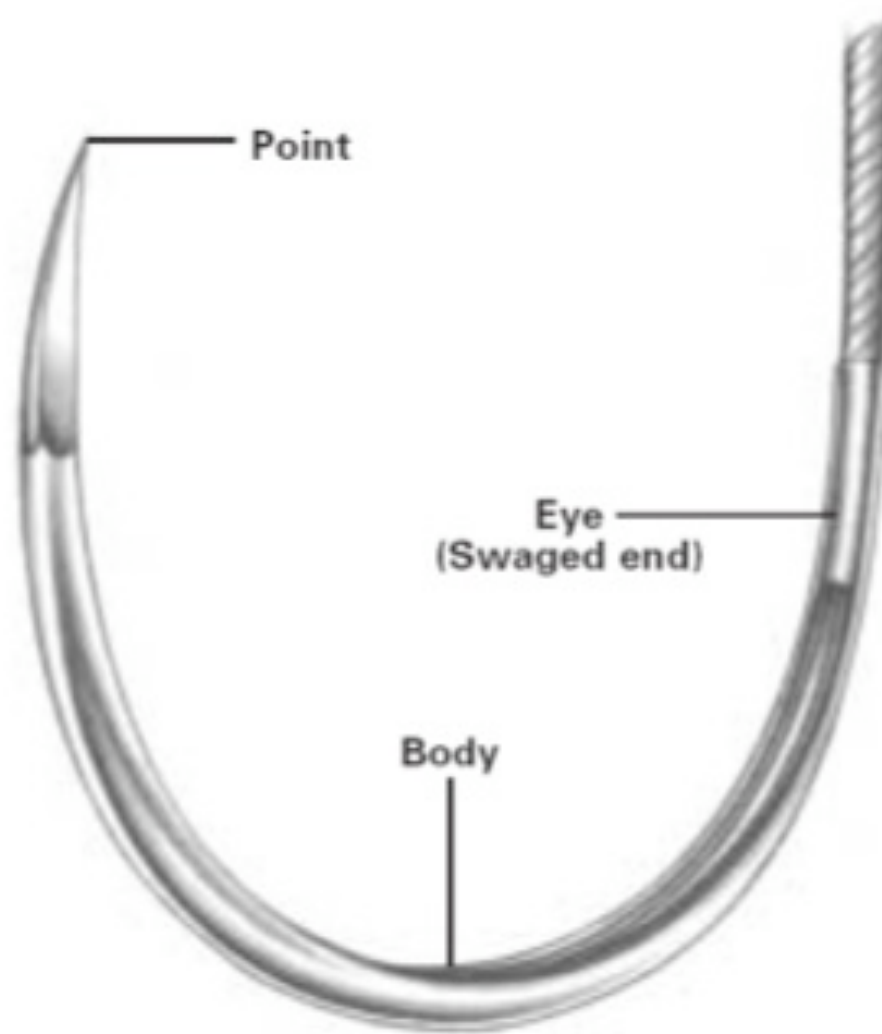
The best surgical needles are

- Made of high quality stainless steel (or alloy).
- As slim as possible without compromising strength.
- Stable in the grasp of a needleholder.
- Able to carry suture material through tissue with minimal trauma.
- Sharp enough to penetrate tissue with minimal resistance.
- Rigid enough to resist bending, yet ductile enough to resist breaking during surgery.
- Sterile and corrosion-resistant to prevent introduction of microorganisms or foreign materials into the wound.

* Trademark

NEEDLES OVERVIEW

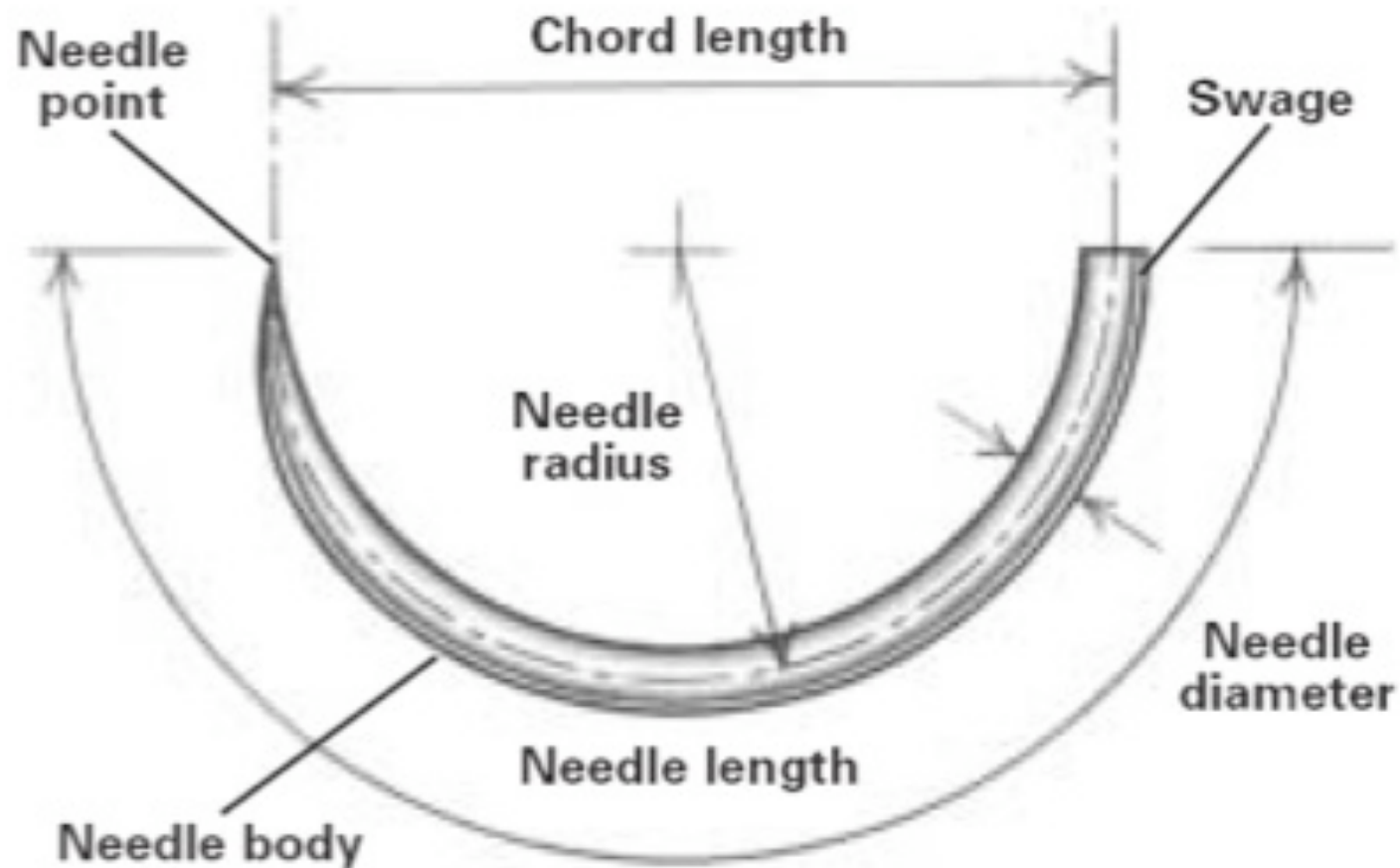
SECTIONS OF A NEEDLE



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NEEDLES OVERVIEW

ANATOMY OF A NEEDLE



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NEEDLES OVERVIEW

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TYPES OF NEEDLE EYES

THE NEEDLE EYE



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NEEDLE SHAPES

	Shape	Applications
	Straight	Gastrointestinal tract, nasal cavity, nerve, oral cavity, pharynx, skin, tendon, vessels
	Half Curved	Skin (rarely used), laparoscopy
	1/4 circle	Eye (primary application) microsurgery
	3/8 circle	Aponeurosis, biliary tract, cardiovascular system, dura, eye, gastrointestinal tract, muscle, myocardium, nerve, perichondrium, periosteum, pleura, skin, tendon, urogenital tract, vessels

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NEEDLE SHAPES

	Shape	Applications
	1/2 circle	Biliary tract, cardiovascular system, eye, fascia, gastrointestinal tract, muscle, nasal cavity, oral cavity, pelvis, peritoneum, parynx, pleura, respiratory tract, skin, tendon, subcutaneous fat, urogenital tract
	5/8 circle	Anal (hemorrhoidectomy), nasal cavity, pelvis, urogenital tract (primary application)
	Compound curve	Eye (anterior segment), laparoscopy

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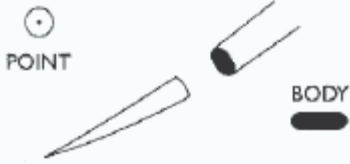
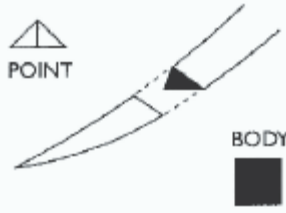
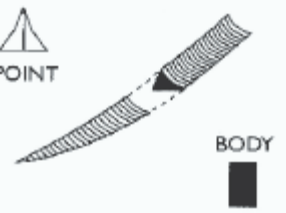
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NEEDLE TYPES

 POINT BODY	Taperpoint Needle For soft, easily penetrated tissues. BV, CT, MO, RB, SH, UR, TF
 POINT BODY	Conventional Cutting Needle Two opposing cutting edges, with a third on inside curve. Change in cross-section from a triangle cutting tip to a flattened body. CCS
 POINT BODY	TAPERCUT* Surgical Needle Cutting tip, taper body. For tough tissue, like 2 needles in one. CC, V
 POINT BODY	Precision Cosmetic-Conventional Cutting PC PRIME* Needle For delicate plastic or cosmetic surgery. Conventional cutting tip and PRIME geometry for increased sharpness. PC

1: <http://ecatalog.ethicon.com>; Wound Closure Manual page 48

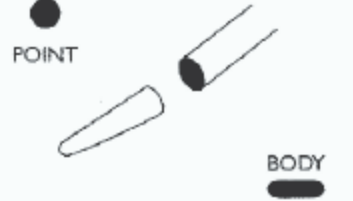
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NEEDLE TYPES¹

	Conventional Spatula Needle	Visibility of the point at bottom provides control of depth penetration.	S
	CS ULTIMA* Ophthalmic Needles	Reduced edge-angles provide better penetration. Readily facilitates knot rotation in ophthalmic surgery.	CS, CSB, CTC
	VISI-BLACK* Surgical Needle	Slim taperpoint needles with a black finish for improved visibility and penetration.	BV-1, C-1, RB-1
	Reverse Cutting MICRO-POINT* Surgical Needle	Cutting edge on outer curve. Extremely smooth. Extremely sharp for ophthalmic surgery.	G
	ETHIGUARD* Blunt Point Needle	Taper body. For blunt dissection and suturing friable tissue.	CTB, SHB

1: <http://ecatalog.ethicon.com>; Wound Closure Manual page 48

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NEEDLE TYPES¹

	Reserve Cutting Needle	Cutting edge on outer curve. For tough, difficult-to-penetrate tissues.	C, FS, M, OS
	Precision Point Needle	For delicate plastic or cosmetic surgery. Cutting tip electropolished for added sharpness.	P, PS
	MICRO-POINT* Surgical Needle (Spatula)	Thin, flat profile. Specially designed for ophthalmic anterior segment surgery.	TG
	SABRELOC* Spatula Needle	Side-cutting spatula shaped edges. For layers of scleral or corneal tissue. Spatulated needle point is centered for maximum needle stability in thin sclera. Four equidistant and properly defined edges provide greater control.	S, SM

1: <http://ecatalog.ethicon.com>; Wound Closure Manual page 48

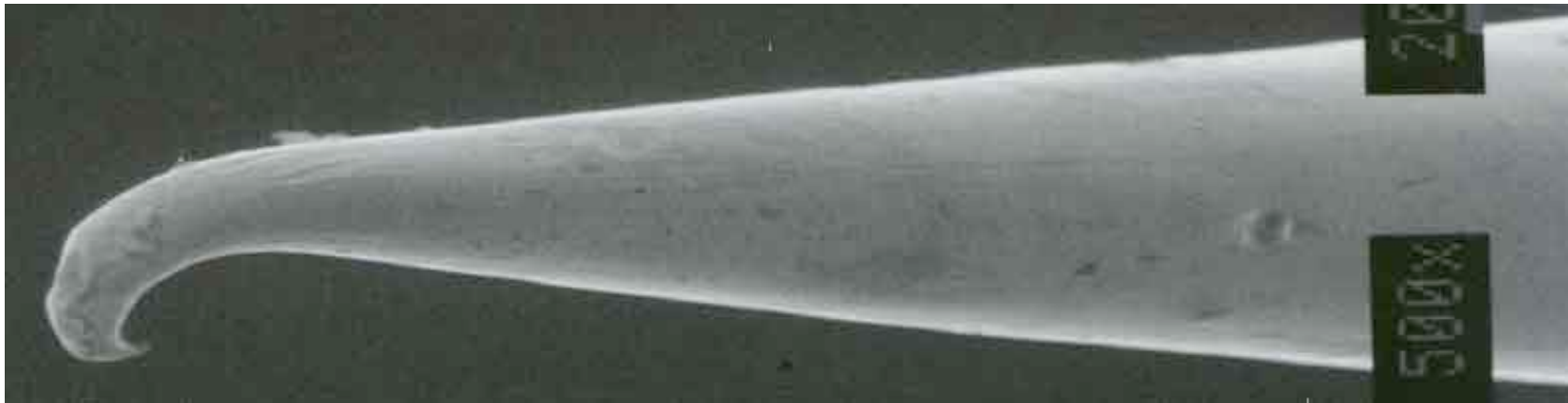
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ADVANCED NEEDLE DESIGN

NEEDLE EVOLUTION

Why Ethicon Continues to Innovate?

Intraoperative Tip Damage on a Slim Taperpoint Needle



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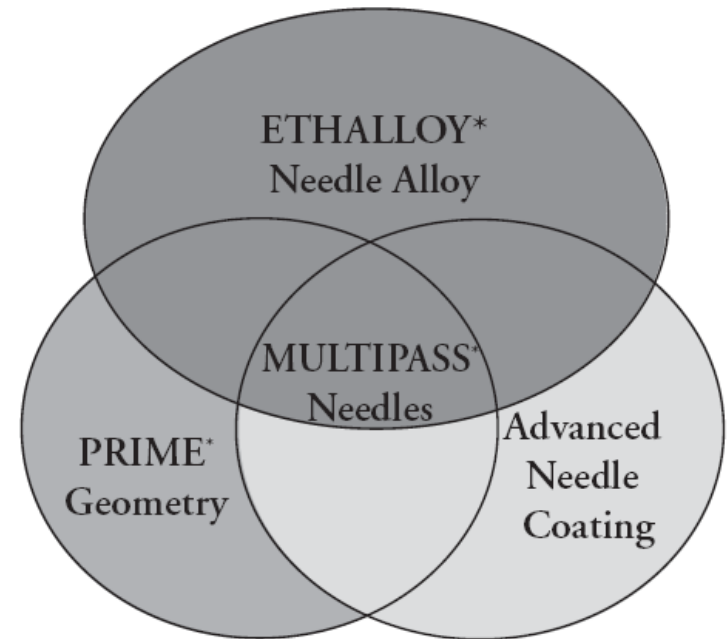
ELEMENTS OF NEEDLE DESIGN¹

Three key elements of advanced needle design:

- Alloy
- Geometry
 - Tip and body
- Coating

The combination of these 3 attributes is the Ethicon **MULTIPASS*** Needles technology

ETHICON
MultiPass*
NEEDLES



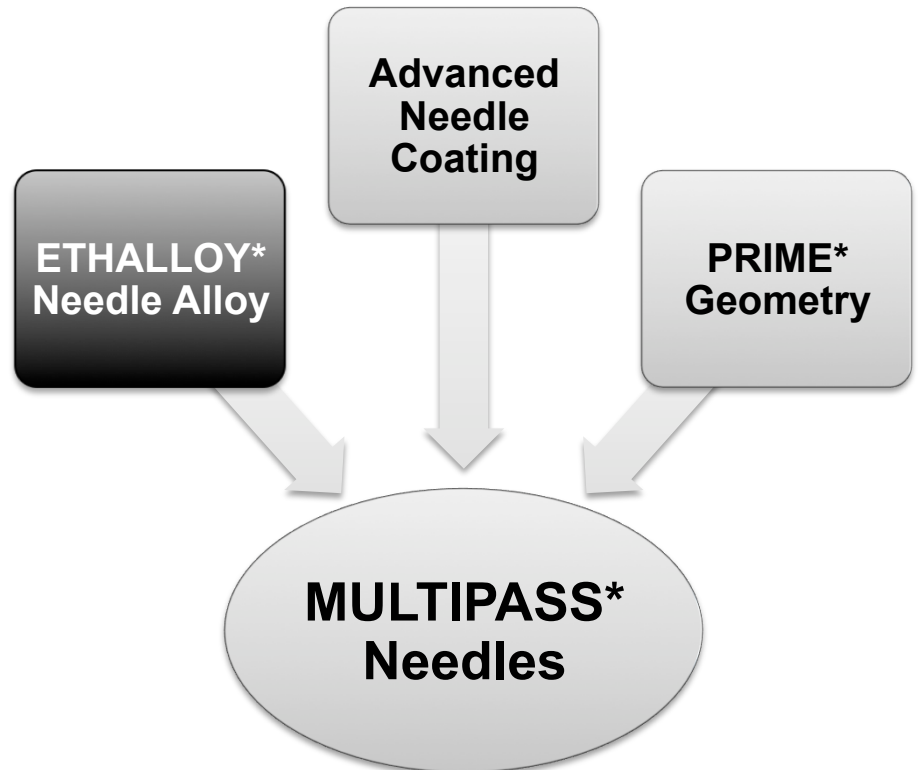
¹: Wound Closure Manual, page 42

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ALLOY – MULTIPASS* NEEDLES

ETHALLOY* Needle Alloy

- Ductile to prevent breakage¹
- Strong to resist bending - 40% stronger than needles made of 300 series stainless steel¹
- Improved tissue penetration
- Smoother needle-to-suture transition
- Better flow through tissue



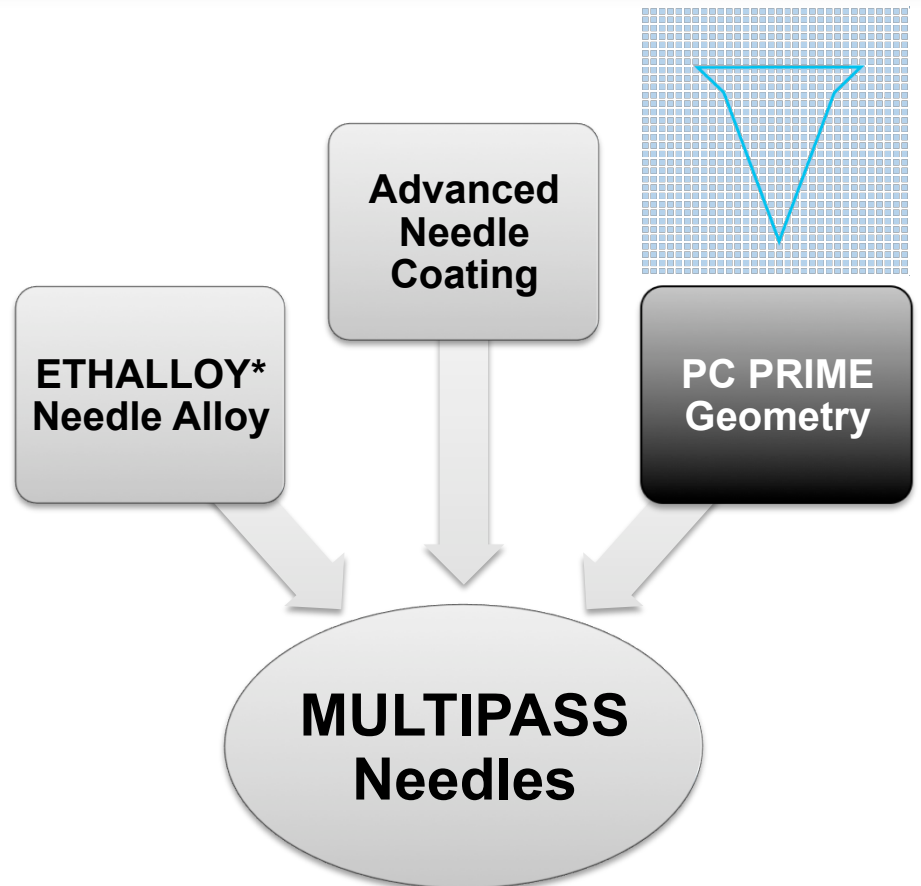
1. Wound Closure Manual, page 42

* Trademark

GEOMETRY – MULTIPASS* NEEDLES

PC PRIME* Needle Geometry

- Designed with less mass to enhance control and needle passage¹
- Requires less penetration force to minimize tissue trauma¹
- Predictable needle penetration for increased confidence
- Square or I-Beam body design for more stability in needle holder



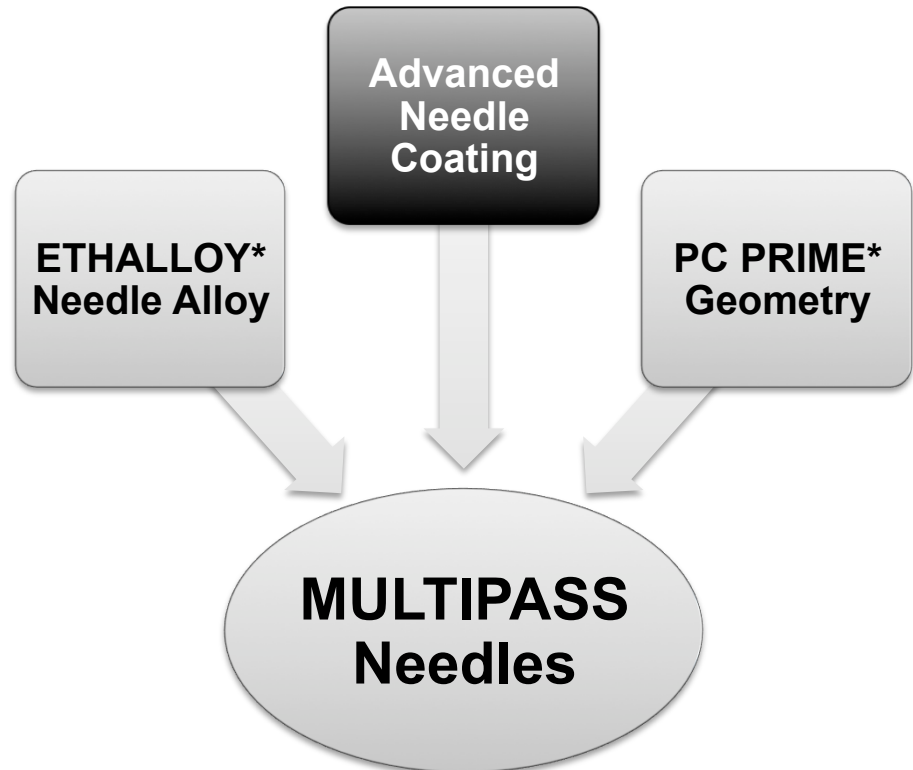
1. Wound Closure Manual, page 42

* Trademark

COATING – MULTIPASS* NEEDLES

Advanced Needle Coating

- Patented MULTIPASS coating helps to maintain needle sharpness pass after pass and consistency from needle to needle¹⁻³
- Covers entire needle, tip to swage, for consistently smooth passage through tissue
- Enhances needle control and placement



1. Wound Closure Manual, page 42
2. EP08-0005 MULTIPASS P-3 Plastic Surgery Needle Evaluation
3. EP08-0010 MULTIPASS PC-3 PS-2 Plastic Surgery Needle Evaluation

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MULTIPASS* NEEDLES¹⁻³

Sharper

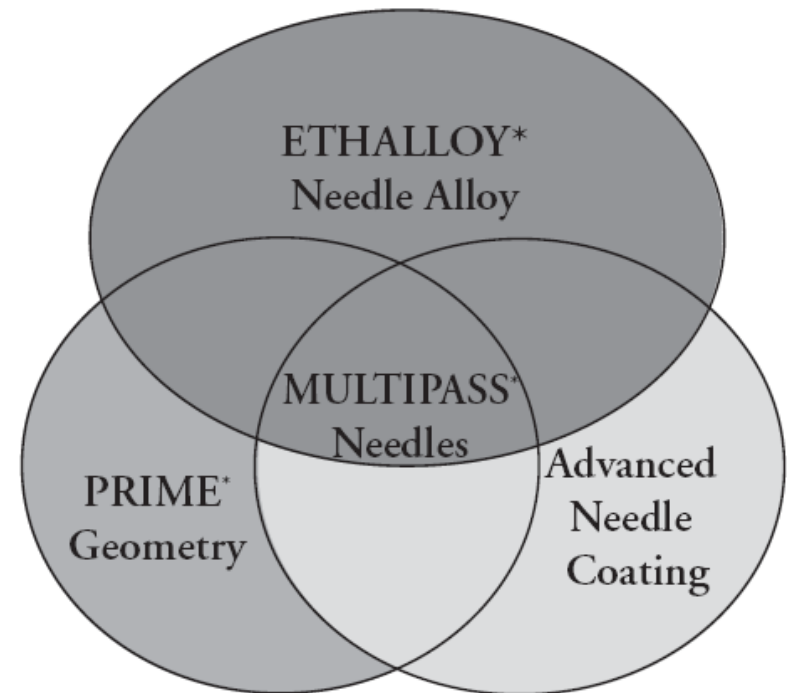
- Significantly sharper than competitive needles, and designed to stay that way
 - pass after pass after pass

Exceptionally Strong

- Ductile to prevent breakage
- Strong to resist bending

Better Control

- Innovative needle coating and reduced-mass design minimize the penetration force required



1. Wound Closure Manual, page 42
2. EP08-0005 MULTIPASS P-3 Plastic Surgery Needle Evaluation
3. EP08-0010 MULTIPASS PC-3 PS-2 Plastic Surgery Needle Evaluation

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ETHICON MULTIPASS* NEEDLES

- PS (Plastic Surgery) series
 - PS-1 , PS-2 , PS-3 , PS-4
- PC (Precision Cosmetic) series
 - PC-1, PC-3, PC-5
- P (Prime) series
 - P-3
- BV175 (Blood Vessel) series
 - BV175-6, BV175-7, BV175-8, BV130-5

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ETHIGUARD* BLUNT POINT NEEDLES

Protection from needlestick injuries, without compromising on performance¹

Decreases the incidence of injury

- Blunt-point geometry allows for easy soft-tissue penetration

Improves precision

- A ribbed and flattened body affords stability in the needle holder, for improved protection against slipping.



1. EP08-0016 ETHIGUARD Needle Assessment

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ETHIGUARD* BLUNT POINT NEEDLES

Use with ease

- Proven to be effective and user-friendly¹

Minimize bleeding and tissue trauma

- Does not cause any additional bleeding or patient trauma compared to a conventional taper needle¹
- Its heat-treated, stainless steel alloy delivers optimal strength and ductility to resist bending and breaking



1. Davis M. *Advanced Precautions for Today's O.R.: The Operating Room Professional's Handbook for the Prevention of Sharps Injuries and Bloodborne Exposures*. Atlanta, GA: Sweinbinder Publications, LLC; 2001:53-64.

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ETHIGUARD* BLUNT POINT NEEDLES SERIES

- **CTB (Circle Taper Blunt) series**
 - CTB, CTB-1, CTB-2
- **CTXB (Circle Taper Extra Large Blunt) series**
 - CTX-B
- **SHB (Small Half Blunt)**
 - SHB

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COMMONLY USED NEEDLES BY SPECIALTY

GENERAL SURGERY - COMMONLY USED NEEDLES

- **SH:** Small Half - $\frac{1}{2}$ Circle
Taperpoint needles
- **CT-1:** Circle Taper - $\frac{1}{2}$ Circle Taperpoint –
Control Release needles
- **PS-1:** Plastic Surgery - $\frac{3}{8}$ Circle
Precision point - Reverse cutting
needles
- **TP-1:** Taper Pericostal / Point –
 $\frac{1}{2}$ Circle Taperpoint



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COMMONLY USED NEEDLES BY SPECIALTY

ADVANCED CV NEEDLES

- **Anastomotic needles**
 - MULTIPASS* Needles: BV175, BV130-5, CC, CC-1
 - VISI-BLACK* Surgical Needles: C-1, BV-1
- **Valve needles**
 - TAPERCUT* Needles: V-5, V-7
- **Consistently beat or meet the needle penetration performance of corresponding competitive needles¹⁻⁵**
 - Pass-after-Pass; Needle-to-Needle; Box-to-Box
 - For up to 30+ needle passes

1. CT09-005 BV130-5 Competitive Assessment
2. EP08-0017 BV175 Double Dip Cardio Needle Assessment
3. EP07-0003 Fine Size Cardio Needle Evaluation
4. CT09-0001 V-5 / RB-1 Competitive Assessment
5. CT09-0006 SH / V-7 Competitive Assessment

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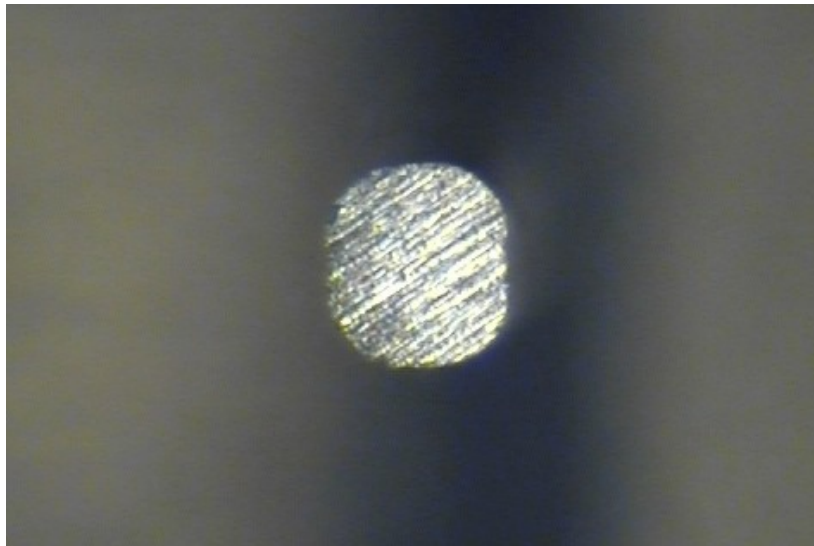
COMMONLY USED NEEDLES BY SPECIALTY

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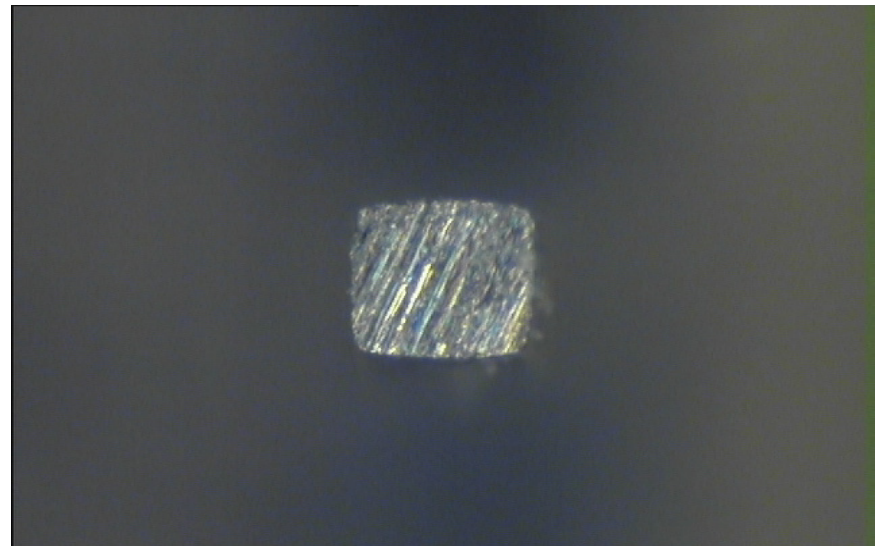
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ROUNDED I-BEAM GEOMETRY

Rounded I-BEAM



Regular geometry



I-BEAM geometry

- Enables secure needle arming in needle holder
- Allows surgeon to arm the needle at any angle

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CV VALVE NEEDLES

Procedure Need

Needle penetration through calcified annuli to place biological or mechanical prosthesis for valve replacements; or annular rings for valve repairs with less force than taperpoint needles

Base Needles:

RB-1



- 17 mm; 1/2 circle
- Aortic Valve Replacements

SH



- 26 mm, 1/2 circle
- Mitral Valve Repairs

Enhanced Needles:

V-5



- 17 mm; 1/2 circle
- Aortic Valve Replacements

V-7



- 26 mm, 1/2 circle
- Mitral Valve Repairs

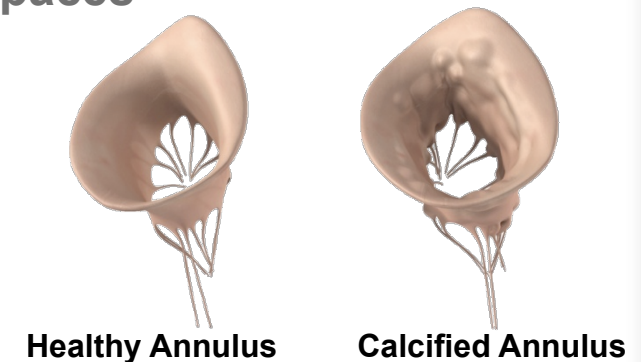
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COMMONLY USED NEEDLES BY SPECIALTY

CV VALVE NEEDLES – V SERIES

V-Series Needles – Designed for VALVE Surgery

- Round Corner I-Beam Geometry
 - Better needle stability when working in tight spaces
 - Flexibility in needle arming
- Exclusive ETHALLOY* Needle Alloy
 - Strong to penetrate tough annulus tissue
- Ribbed needle grasp zone
 - Reduces rotation and movement in the needle holder
- Point tip design
 - Designed for tough calcified tissue and sewing rings
 - Requires less penetration force compared to traditional tapered needles¹⁻²



1. CT09-0001 V-5 / RB-1 Competitive Assessment

2. CT09-0006 SH / V-7 Competitive Assessment

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VALVE NEEDLES

V-5, V-7 TAPERCUT* Surgical Needles

- Specially designed for improved penetration of tough, calcified annuli.
- Ribbed and Round Corner I-Beam needle grasp zone reduce rotation and movement in the needle holder
- Point tip design requires less penetration force compared to traditional tapered needles
- Provide superior penetration when compared to the tapercut needles of the leading competitor



V-5

V-7



V-7 Point

1. CT09-0001 V-5 / RB-1 Competitive Assessment
2. CT09-0006 SH / V-7 Competitive Assessment

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ANASTOMOTIC NEEDLES – BV-175, BV-130 SERIES¹⁻²

- Optimal needle diameter
 - 24% thinner than BV-1 series
 - Closer to 1:1 suture-to-needle ratio
 - 44% smaller hole than BV-1
- Easy penetration through tissue
 - Up to 38% less penetration force required vs BV-1
 - Up to 55% less force required vs leading BV-1 competitor
- MULTIPASS* Needles coating
 - Smooth penetration, pass after pass
- Exclusive Rounded I-beam geometry
 - Stability in the needle holder

1. CT09-005 BV130-5 Competitive Assessment
2. EP08-0017 BV175 Double Dip Cardio Needle Assessment
3. EP07-0003 Fine Size Cardio Needle Evaluation

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CV ANASTOMOSIS NEEDLES



BV-1
suture size 7/0



BV-175
suture size 7/0

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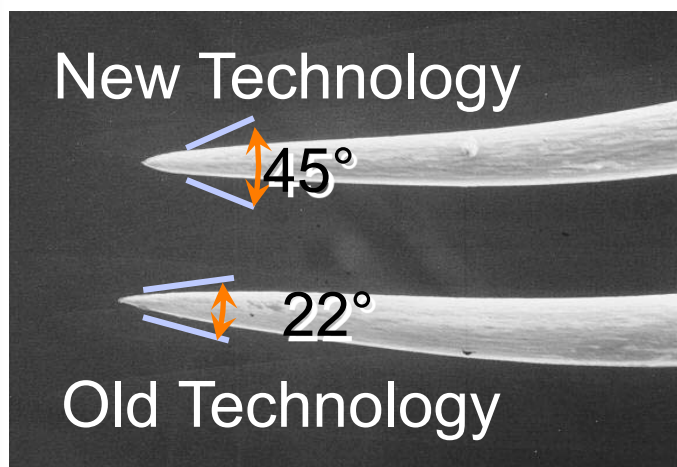
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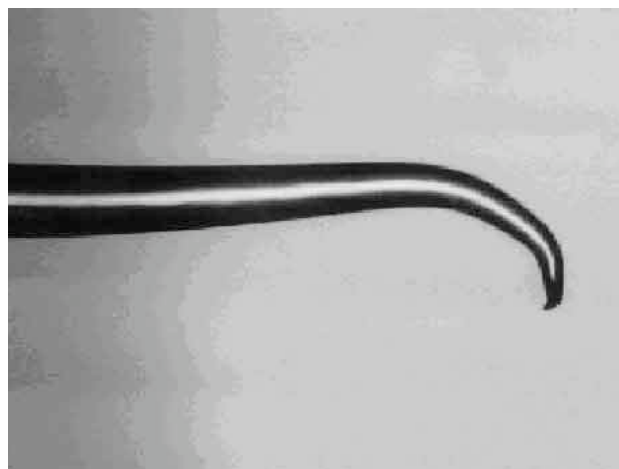
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CV ANASTOMOSIS NEEDLES – POINT¹



- Damage-resistant point with a 45° angle tip
- More coating at the point



Laboratory-induced needle tip damage on 22-degree tip geometry



Same test on new Ethicon tip design — improved resistance to point damage

1. BV 175 Needle Specification, Data on file, Ethicon, Inc.

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PERIPHERAL VASCULAR

C-1 (Cardiovascular)



CC (Calcified Coronary)



BV100-4 (Blood vessel)
– MULTIPASS* Needles



V-7, V-5 (Tapercut)



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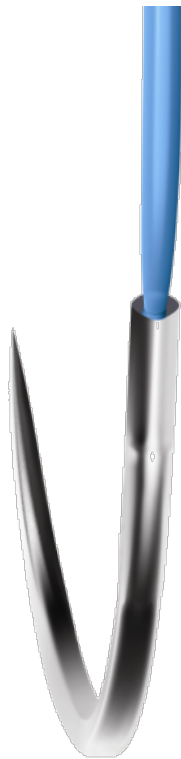
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CC AND HEMO-SEAL* NEEDLE SUTURE

HEMO-SEAL Suture

For avoiding needlehole bleeding



CC needle point

For easily penetrating heavily calcified vessels



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COMMONLY USED NEEDLES BY SPECIALTY

PLASTIC SURGERY

PS-1 (Plastic surgery)

- Ribbed for enhanced grip
- MULTIPASS* Needles
- Prime geometry



CT-1 (Circle taper)

- 1/2 Circle Taperpoint



PC-3 (Plastic)

- Precision point
- 3/8 Circle Reverse Cutting



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COMMONLY USED NEEDLES BY SPECIALTY

ORTHOPEDIC SURGERY

OS-4 (Orthopedic surgery)

– 1/2 Circle Reverse Cutting



CT-1 / CP-1 (Cutting point)

– 1/2 Circle Reverse Cutting



V34, V37 (Tapercut)

– 1/2 Circle Tapercut



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COMMONLY USED NEEDLES BY SPECIALTY

NEUROSURGERY

RB-1 (Renal bypass)

– 1/2 Circle Taperpoint



SH (Small half)



CT-1 (Circle taper)

– 1/2 Circle Taperpoint



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COMMONLY USED NEEDLES BY SPECIALTY

OB/GYN

Taperpoint needles

- CT-1 (Circle Taper), CTX (Extra Large)
- MO-4 (Mayo)
- SH (Small half)



Straight cutting needles

- KS (Keith Straight)



ETHIGUARD* Blunt Point Needles

- CTB (Circle Taper Blunt)
- CTX-B (Extra Large Blunt)



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COMMONLY USED NEEDLES BY SPECIALTY

UROLOGY

UR-6 (Urology) series

– 5/8 Circle Taperpoint



BV100-4 series

– 1/4 Circle Tapercut



RB-1 (Renal bypass)

– 1/2 Circle Taperpoint



SH (Small half)



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PC-1 (Precision Cosmetic)

- MULTIPASS* Needles
- 3/8 Circle Precision Cosmetic
- PC PRIME* needles



PC-3 (Plastic) series

- Precision point
- 3/8 Circle Reverse Cutting



SC-1 (Straight Cutting)



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OPHTHALMIC

TG140-8 series (Transverse Ground)

- MICRO-POINT* Needle Spatula



SABRELOC* Spatula Needle

- Spatula
- Conventional spatula
- Center-point spatula



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BARIATRICS

SH (Small Half)



CT-1 (Circle taper)
– 1/2 Circle Taperpoint



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Thank you