

HOW TO CHOOSE NEEDLE HOLE DIAMETER

ENOVA[®] Surgical NEEDLES

All ENOVA[®] needles are made in 300 steel series, according to the standard ASTM F899.

GLOSSARY

DIAMETER

The diameter of a suture is one of the criteria involved in its selection, and applies both to the needle and the thread. The diameter, or gauge, is expressed differently depending on the reference pharmacopoeia (EP or USP). There is a broad spectrum of diameters available.

For example, a decimal 2 corresponds to a thread of 0.20-0.29mm in diameter.

However, the most widely used system of classification is that of the United States Pharmacopoeia (USP) in which the gauge varies from 12-0 to 10, going from thinnest to thickest and according to the origin (natural or synthetic) of the suture and its resorption profile.

DECIMAL / USP SIZES / GAUGES

The European Pharmacopoeia (EP) decimal classification is used as the standard for defining the thread gauge (from 0.01 to 12).

There is an equivalence between these two standards

USP	Decimal	Thread gauge in mm
12-0	0.01	0.001-0.009
11-0	0.1	0.010-0.019
10-0	0.2	0.020-0.029
9-0	0.3	0.030-0.039
8-0	0.4	0.040-0.049
7-0	0.5	0.050-0.069
6-0	0.7	0.070-0.099
5-0	1	0.100-0.149
4-0	1.5	0.150-0.199
3-0	2	0.200-0.249
	2.5	0.250-0.299
2-0	3	0.300-0.349
0	3.5	0.350-0.399
1	4	0.400-0.499
2	5	0.500-0.599
3+4	6	0.600-0.699
5	7	0.700-0.799
6	8	0.800-0.899
7	9	0.900-0.999
8	10	1.000-1.099
9	11	1.100-1.199
10	12	1.200-1.299

CAUTION

Following combinations are rough only. Based on suture type or suture manufacturer such combinations may vary. Please measure carefully your suture diameter for selecting needle hole diameter. Sutorex & Renodex takes no responsibility

for needle hole selection. Thread samples can be sent to us for testing purposes if needed.

CORRESPONDENCE BETWEEN HOLE SIZE DIAMETER AND U.S.P. AND E.P SUTURE SIZE

Metric Size (Gauge no.)	U.S.P. suture Size (Gauge no.)	Monofilament ¹		Multifilament ²
		Non absorbable ³	Absorbable ⁴	
		Hole size (Ø in mm)		
EP 0.7	USP 6-0	0.15	0.20	0.20
EP 1	USP 5-0	0.20	0.24	0.24
EP 1.5	USP 4-0	0.24	0.28	0.28
EP 2	USP 3-0	0.28	0.40	0.33
EP 2.5		0.33	(*)	(*)
EP 3	USP 2-0	0.40	0.44	0.44
EP 3.5	USP (1-0) 0	0.44	0.55	0.51
EP 4	USP 1	0.55	0.61	0.59
EP 5	USP 2	0.65	0.65	0.69
EP 6	USP 3 & 4	0.74	(*)	0.79
EP 7	USP 5	0.84	(*)	0.89
EP 8	USP 6	0.93	(*)	(*)
EP 9	USP 7	1.03	1.10	(*)

(*): to be defined after trials

SUTURE TYPES

The suture material may be made of a single filament (monofilament) or several filaments (multifilament or braided)².

1) Monofilament

Monofilament sutures are an attractive option because of their strength, low tissue drag and low propensity to spread infection.

It is accepted that the incidence of infection with a monofilament suture is significantly lower than with a braided one.²

2) Multifilament

Compared to monofilament sutures, braided ones have a greater risk of promoting infection due to capillarity, as the interstices between the fibres can

3) Non-Absorbable

Historically, non-absorbable sutures have played an important role in the development of surgical procedures.

The severity of local reactions generated by some of them, has hastened the development of absorbable sutures⁴. They are, nevertheless, still used in some cases, particularly in cardiovascular surgery.

Monofilament sutures are a surgical advancement because their structure facilitates passage through the tissues and prevents capillarity.

facilitate the spread of pathogens along the fibre and thus direct to the placement site. Braided sutures have a relatively rough surface which causes a «saw effect» when the thread passes through the tissues.

As they remain in the body permanently, non-absorbable sutures offer long-term support.

They are made from physico-chemically stable materials. If used in superficial tissue these sutures have to be removed. Nonabsorbable sutures can be of natural, metal or synthetic origin.

4) Absorbable

Absorbable sutures are available in monofilament¹ or braided (multifilament²) form.

The absorbable sutures used nowadays are mainly of synthetic origin. Their Absorption time varies from

short-term (approx. 50 days) through mid-term (60 to 90 days) and long-term (180 to 210 days) to extra-long-term (390 days).

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use.

Suggestions of use shall not be taken as inducements to infringe any patent.

Suturex & Renodex's sole warranty is that our products will meet our internal specifications and the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other as warranted.

All documents are available upon request. For further information, please see our website, www.suturex-renodex.com or contact us.