

# Development of Peripheral Stent Graft

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배 장 환  
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# Conflict of Interest

- I, Jang-Whan Bae, am one of investigators to develop peripheral stent graft with GENOSS Co.

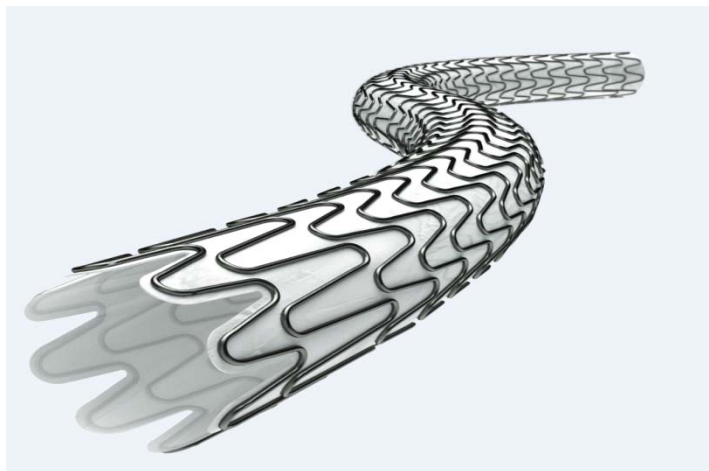
# Materials

1

## STENT

### NITINOL

- 니켈-티타늄 합금
- Nickel/Titanium 50/50 by atomic percentage
- **N**ickel **T**itanium **N**aval **O**rdnance **L**aboratory (NOL : 미해군 병기 연구소에서 최초 개발)
- **초탄성, 형상기억** 특성
- Stent, Valve, IVC filter...

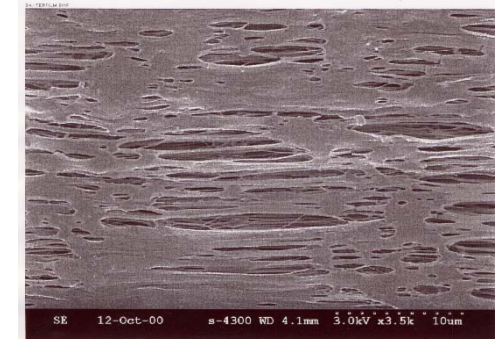
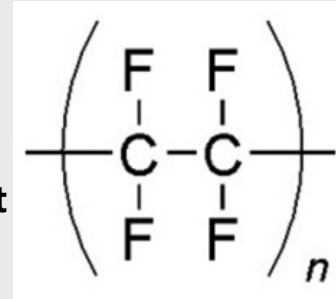


2

## GRAFT

### ePTFE

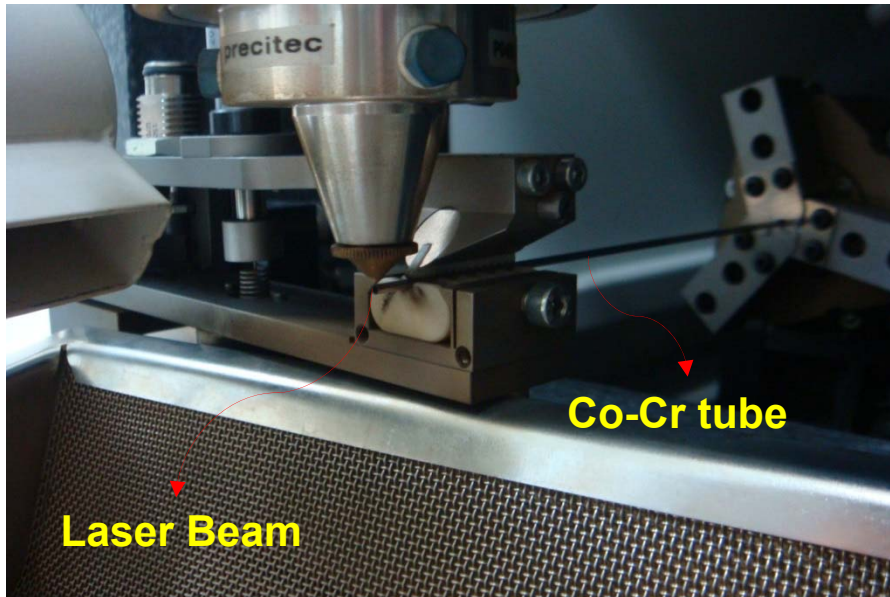
- **expanded** PTFE
- Poly(tetrafluoro ethylene)
- extremely hydrophobic
- very low friction coefficient
- **non stick coating**
- Artificial vessel, catheter coating...



# Stent Manufacturing

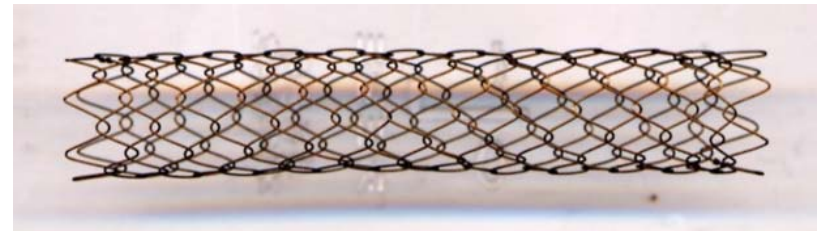
1

## Laser Cutting

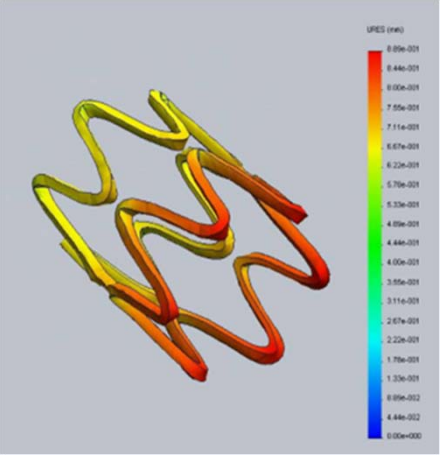
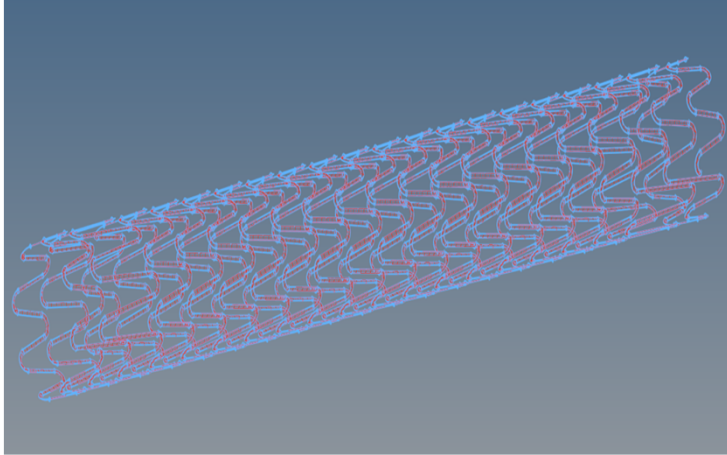
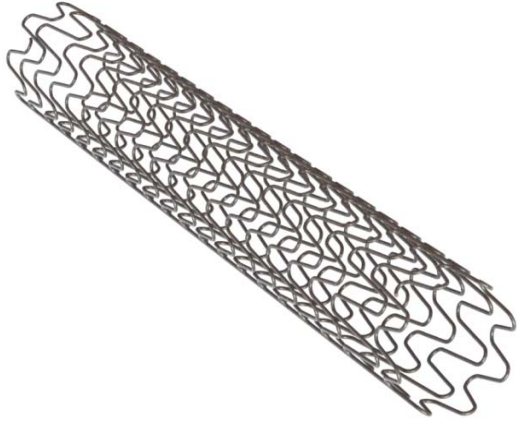


2

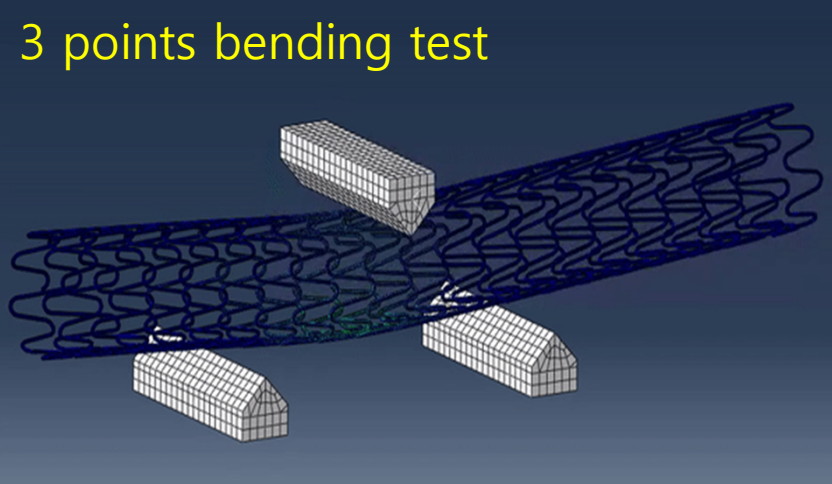
## Wire Construction



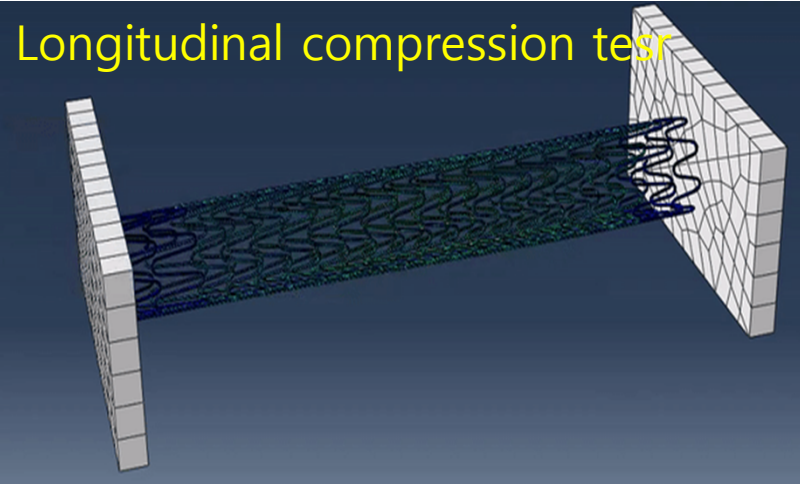
# FEM Analysis














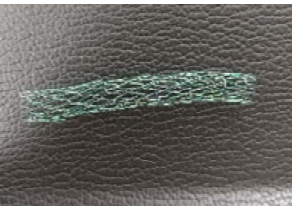

3 points bending test



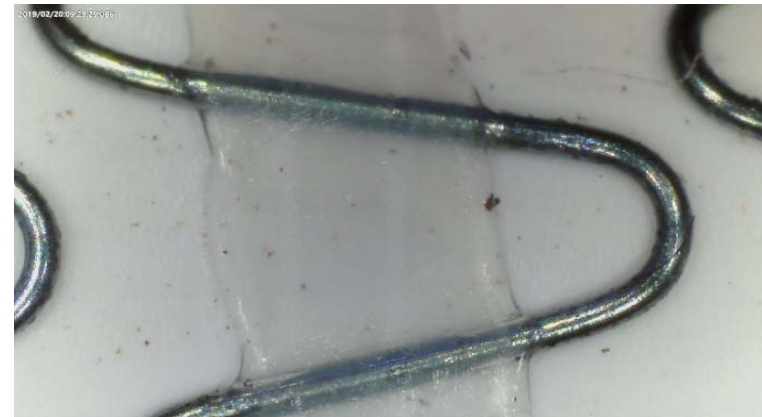
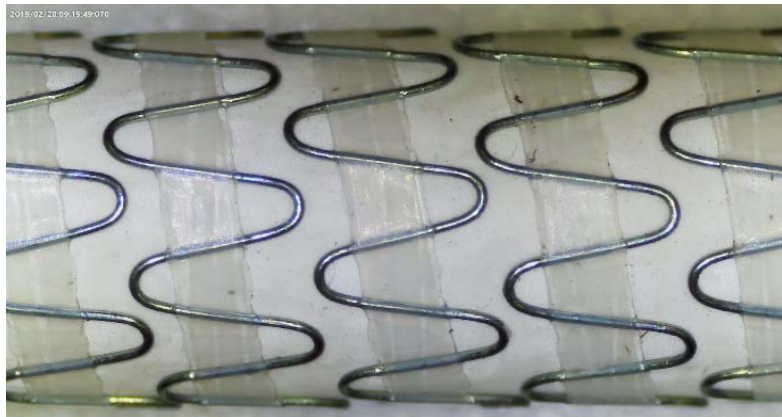
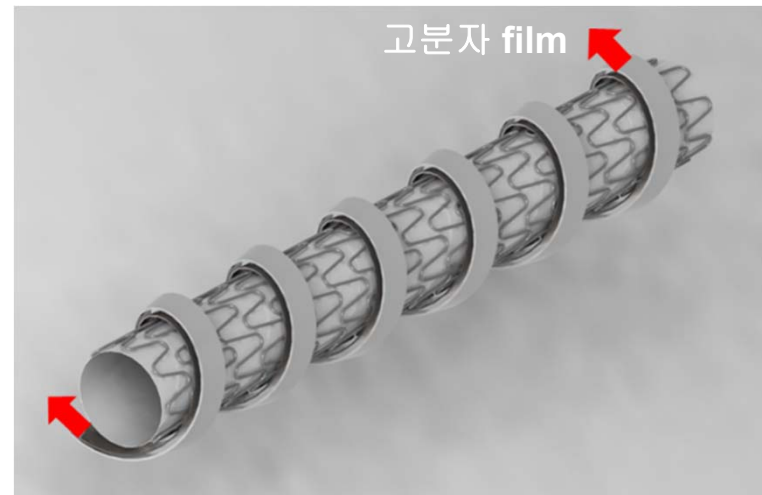
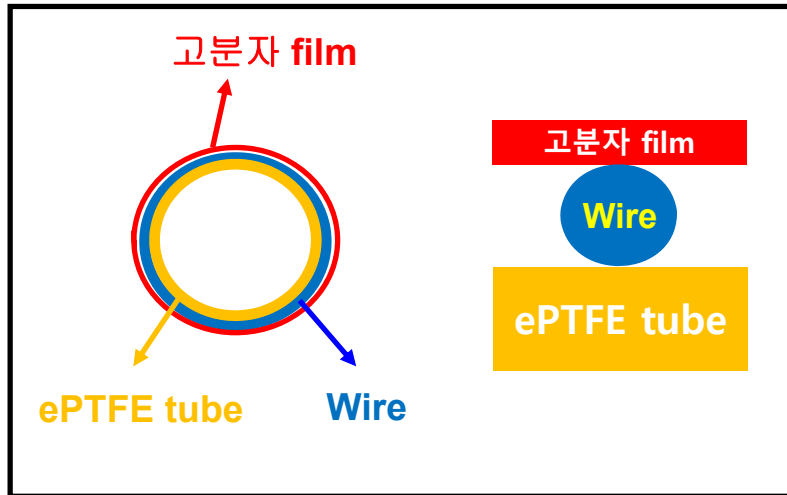
Longitudinal compression test



# Heat Treatment

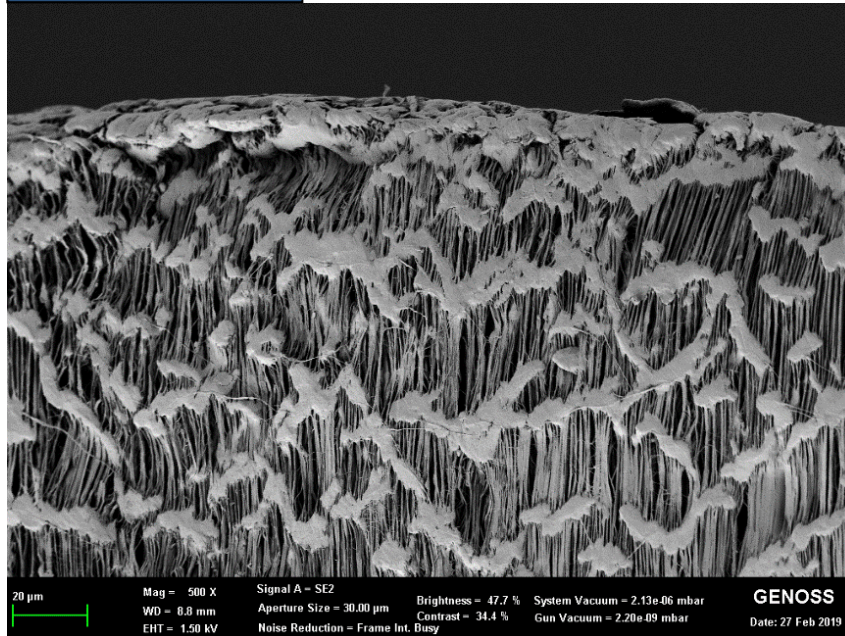
	5 min	10 min	20 min	30 min	40 min
500 °C					
520 °C					
540 °C					

# Process

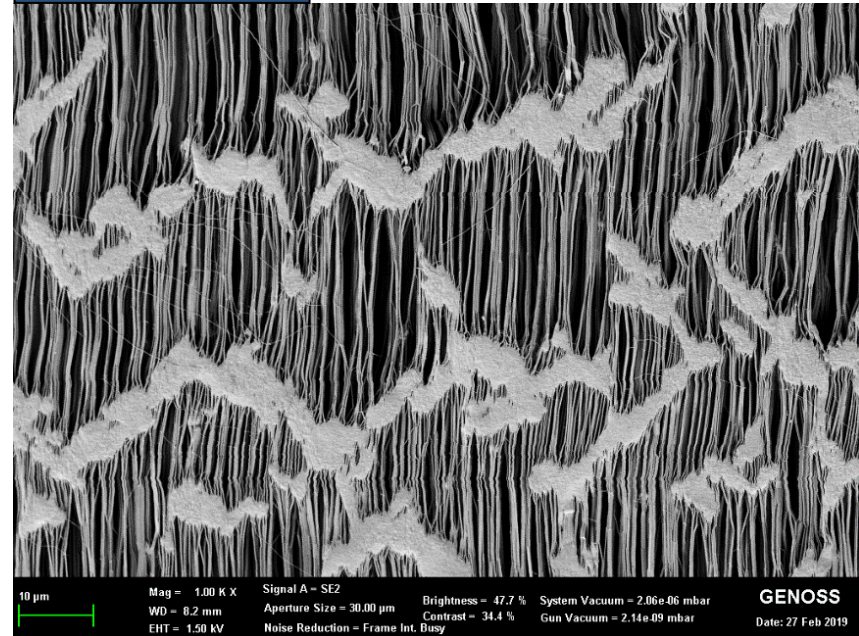


# ePTFE Graft

X500



X1000

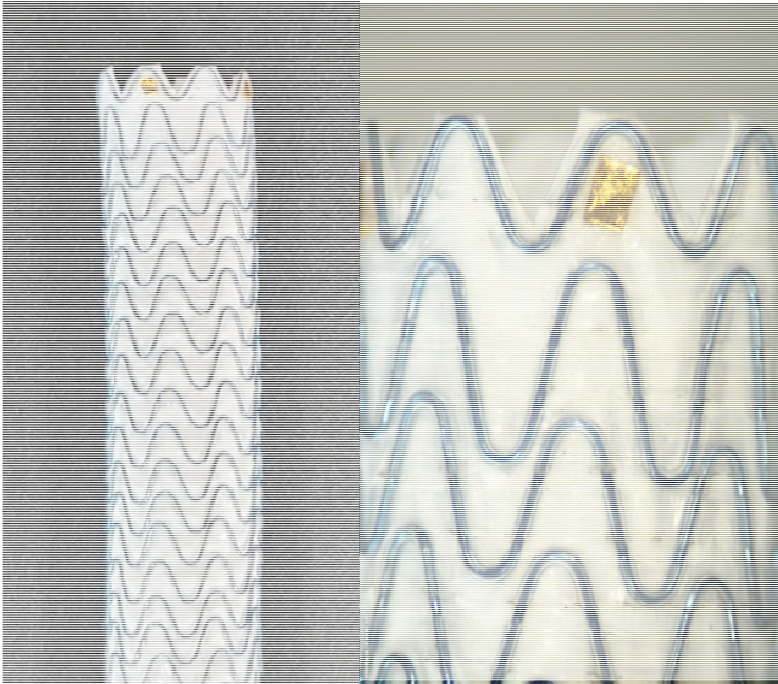




# 형상

1

Genoss



2

Viabahn

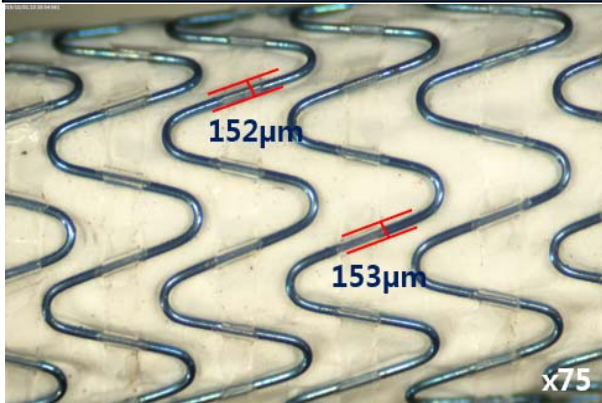


# Thickness

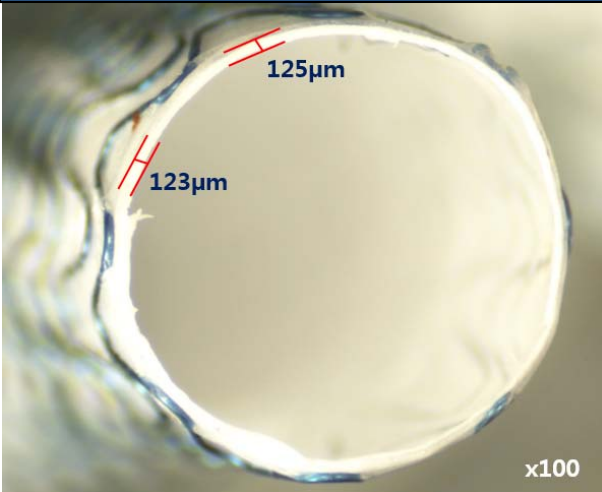
1

Genoss

Nitinol Wire 152 $\mu$ m



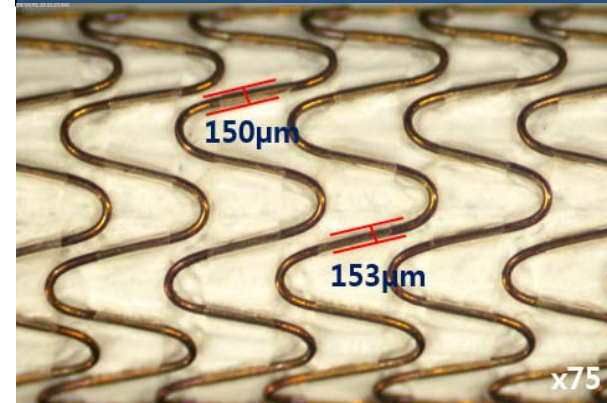
ePTFE 125 $\mu$ m



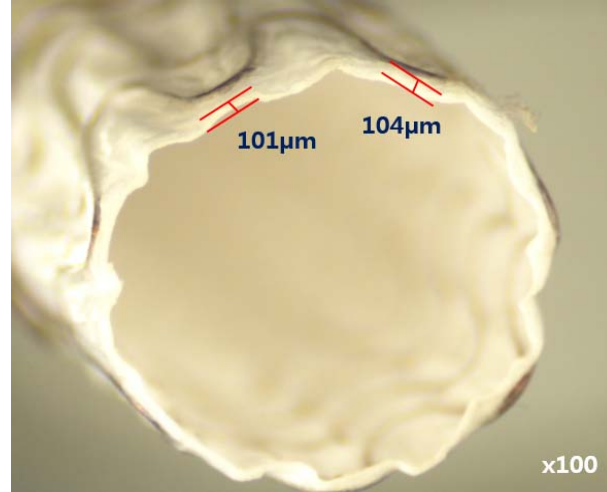
2

Viabahn

Nitinol Wire 152 $\mu$ m

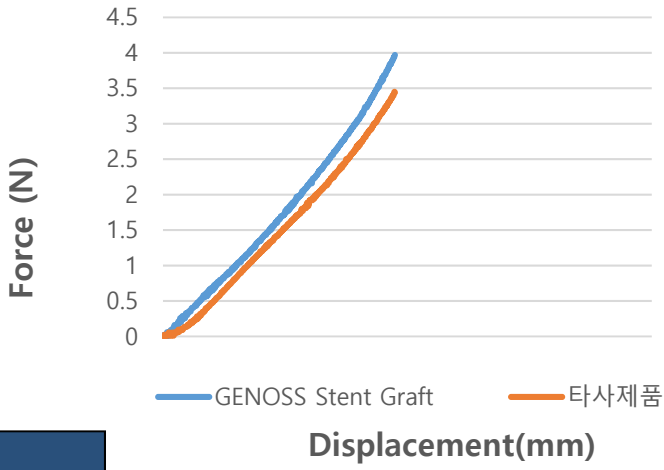
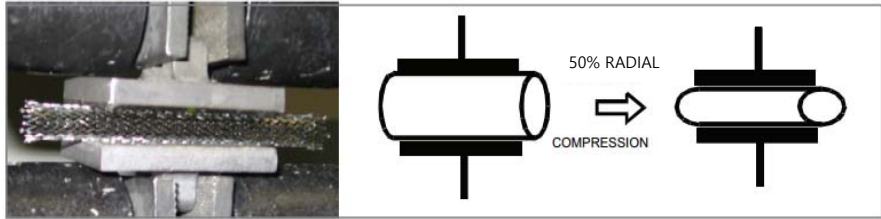


ePTFE 100 $\mu$ m



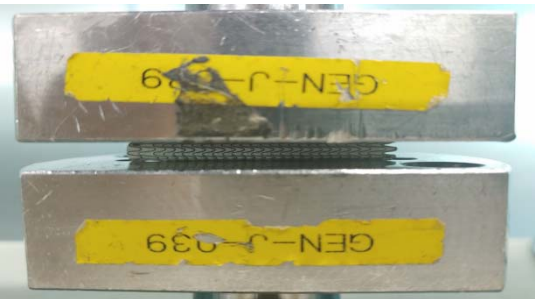
# Radial Force

## Radial Force 평가 방법



**Genoss**  
6x40mm

**Viabahn**  
6x40mm

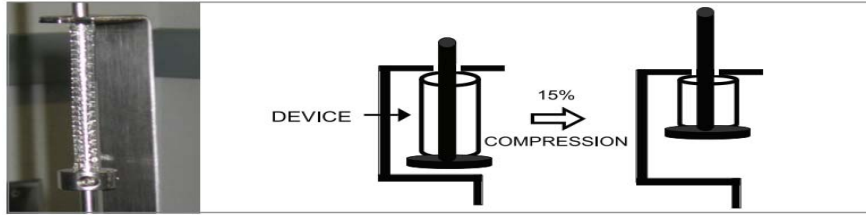


**3.97N**

**3.45N**

# Longitudinal Compression Force

## 평가 방법



## Genoss



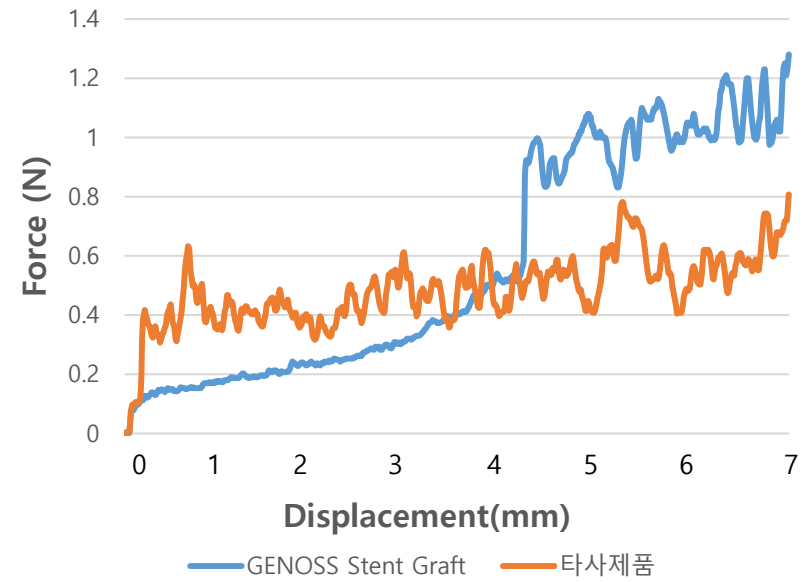
1.3N

## Viabahn



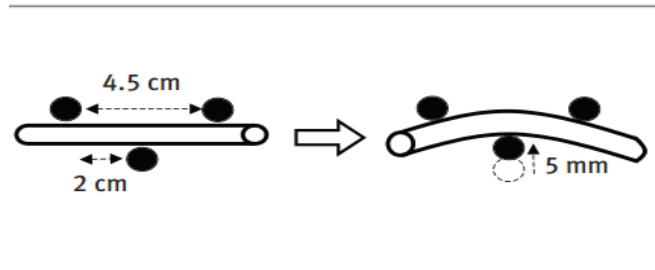
0.8N

## 길이방향 압축력 시험

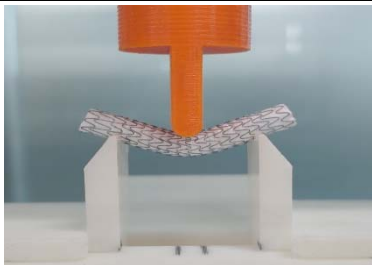


# Flexibility

## Flexibility 평가 방법

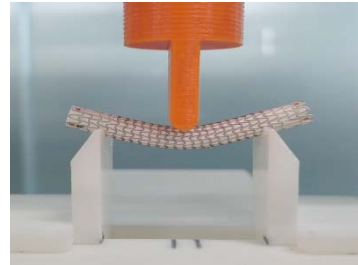


### Genoss



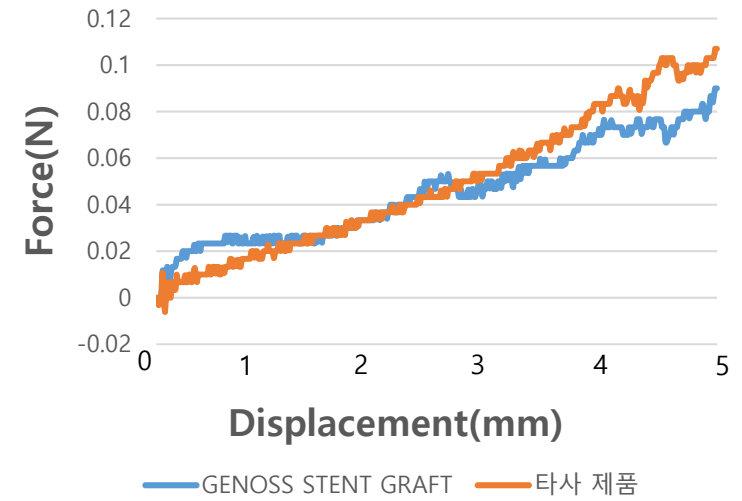
0.09N

### Viabahn



0.107N

## 유연성(flexibility) 시험



# Conformability

1

Genoss



2

Viabahn

