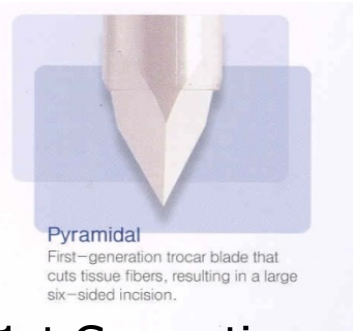




**LAGIS<sup>®</sup>**  
MINIMAL INVASIVE INNOVATED

TROCAR SYSTEM  
***FineSEAL<sup>™</sup>***

## Development process



### 1st Generation

*Easy to puncture but the scar is too big. And it might have the complications such as Hernia*



### 2nd Generation

*The scar is smaller than Pyramidal but it may still have complications such as Hernia.*



### 3rd Generation

*High technology. It may prevent various complication caused by trocar.*



### 4th Generation

*The trocar of the highest technology. Optical trocars offer visualization to deliver clear tissue identification on the first entry of the tissue layer.*



### 5th Generation

*The 3mm Mini Trocar offers faster recovery time and improve 'cosmesis' (minimal scarring) by making smaller incisions.*



## Key Element of a “Good” Trocar

- Easy to penetrate
- Good Abdominal Wall retention
- Smooth Instrument Drag Force
- Maintain abdominal insufflation
- Rigid Trocar cannula – Wall Thickness





## A. Easy to penetrate



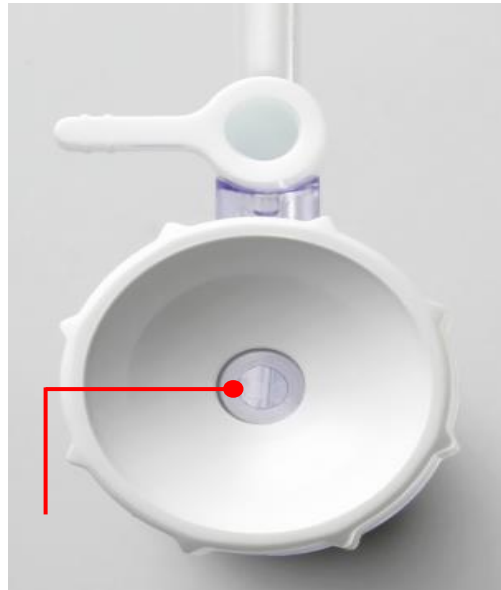
Smooth insertion for easier trocar placement



## B. Abdominal Wall retention



Funnel shaped housing



Stability Thread Design  
Provides better fixation on abdominal wall.

## C. Instrument Drag force Testing Method



**Tensile  
testing  
machine**

**12mm  
optical  
Obturator**



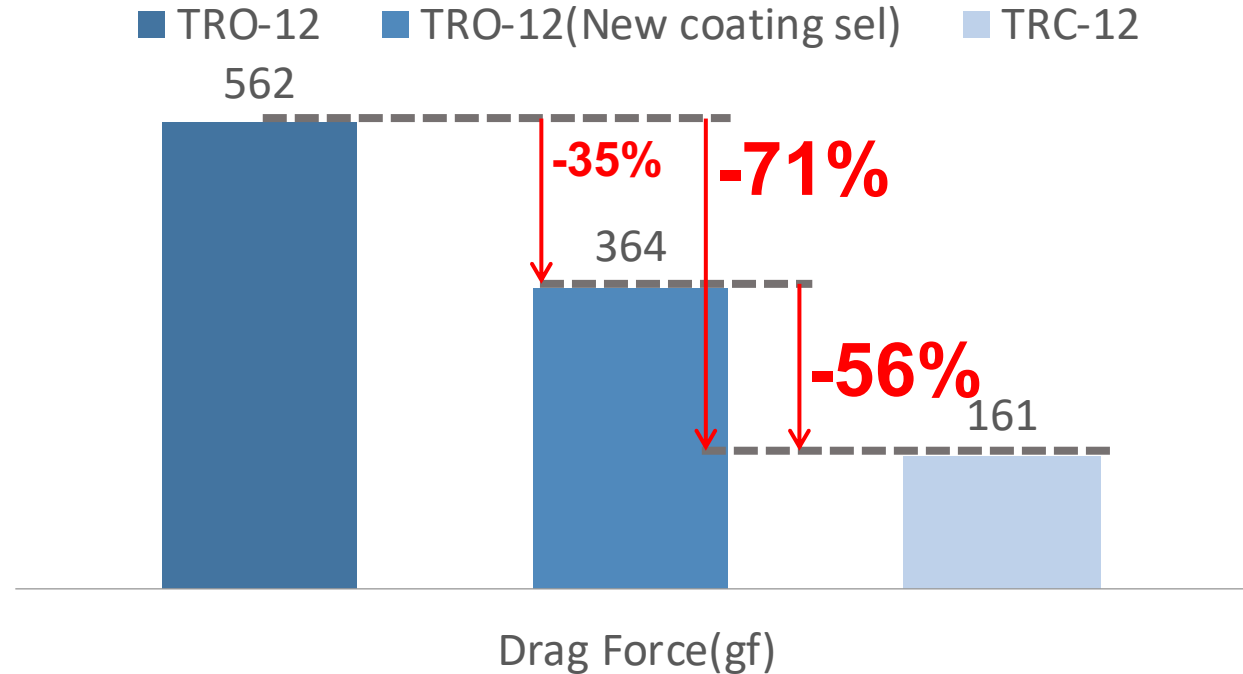
## Testing Result

	TRO-12	TRO-12(New Coating Seal)	TRC
1	604	452	174
2	542	336	188
3	540	304	154
4			154
5			134
<b>AVG.</b>	<b>562</b>	<b>364</b>	<b>161</b>

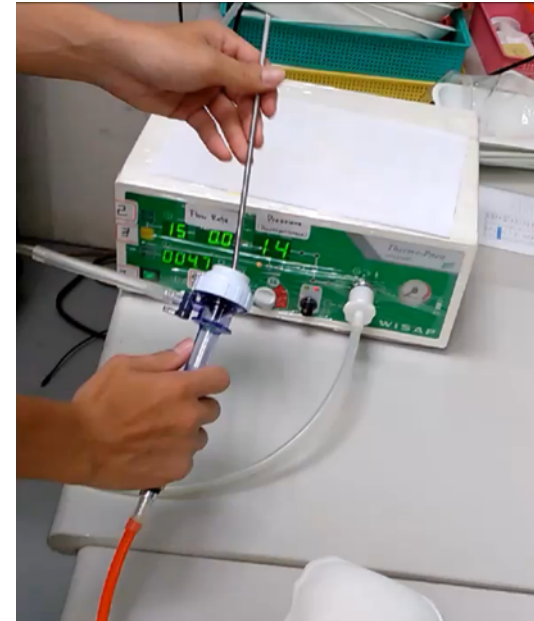
Unit : gf

- LAGIS TRO-12 → TRO-12(New Coating Seal) drag force drop 35%
- LAGIS TRO-12 → TRC-12 drag force drop **71%**
- LAGIS TRO-12(New Coating Seal) → TRC-12 drag force drop **56%**

### Instrument Drag Force comparison Chart



## D. Maintain abdominal insufflation



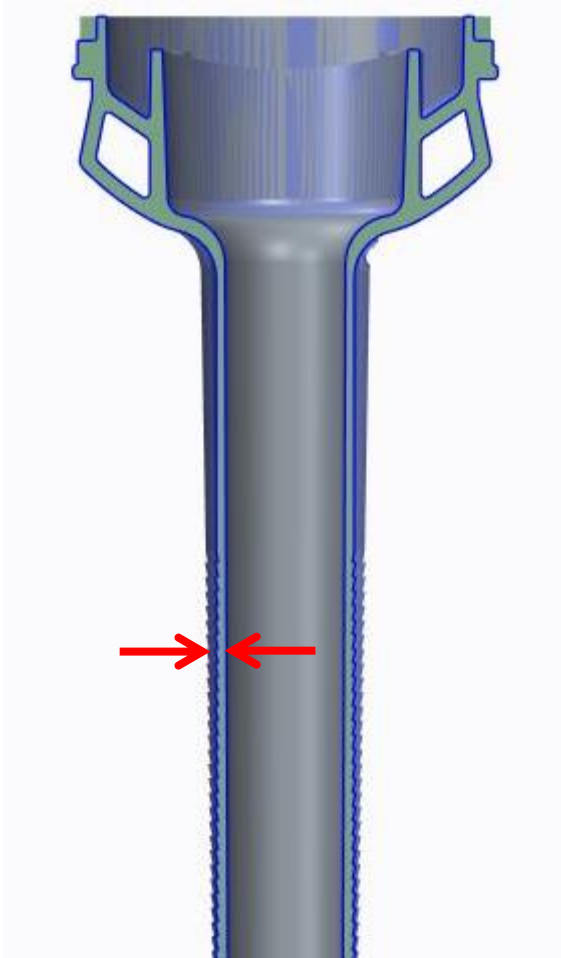
LAGIS TROCAR	5mmHg	15mmHg	25mmHg
A. Without any insertion	O	O	O
B. 4.7mm instrument insertion	O	O	O
C. Perpendicular movement (4.7mm)	O	O	O
D. Horizontal movement (4.7mm)	O	O	O
E. 12mm instrument insertion	O	O	O



E. Trocar cannula – Wall Thickness

	Applied	Ethicon XCEL	COVIDIEN VersaPort	TRO	TRC
Wall Thickness	1.15	1.52	1.64	1.74	1.86

Unit : mm



# New TRC Trocar - 12mm Series



# New TRC Trocar - Low Profile Series



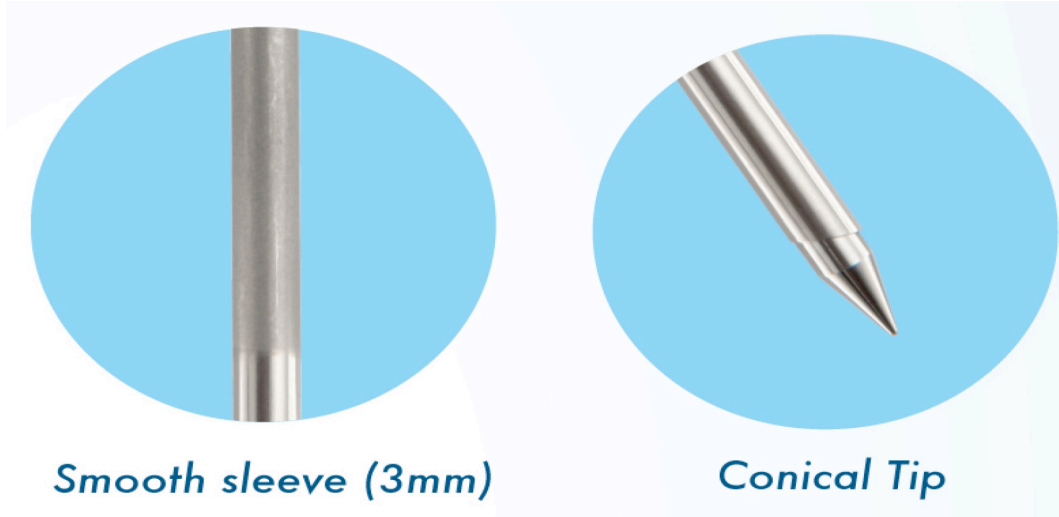
## LAGIS new TRC 6mm trocar system

- Dilating tip and ClearView™ tip.
- Stopcock-removed low profile design



## Lagis new mini TRC 3mm trocar

- Innovative product with bladeless obturator.
- Smaller wound: for small patients and better cosmetic outcomes.





## Lagis new mini TRC trocar



## New TRC series meets New Technique

- NOTES for Thyroidectomy – TransOral Endoscopic Thyroidectomy Vestibular Approach(TOETVA)



# LAGIS HandyPort™ TRE BLADELESS TROCAR

Make it affordable and reliable!!



**LAGIS** provides good balance between clinical requirements and economic demands.



# Hands on and Q&A

