LC0005S/LC0003S Light Cable Instructions for Use

Statement

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This manual provides the instructions necessary to operate the product in accordance with its function and intended use. Observance of this manual is a prerequisite for proper performance and correct operation, and ensures patient and operator safety.

Mindray is responsible for the effects on safety, reliability and performance of this product, only if:

(1) this product is used in accordance with the instructions for use.

(2) this product is not damaged by human factors. Human factors refer to unintentional falling, intentional damaging, etc.

In the event that it becomes necessary to return a unit to Mindray, please contact the Mindray Service Department and obtain a Mindray Customer Service Authorization Number. The Mindray Customer Service Authorization Number must appear on the outside of the shipping container. Return shipments will not be accepted if the Mindray Customer Service Authorization Number is not clearly visible. Please provide the model number, serial number, and a brief description of the reason for return. The customer is responsible for freight charges when this product is shipped to Mindray for service (including any relevant customs fees or other freight related charges).

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The issue date of this manual is 2021-5.

Notification of Adverse Events

As a health care provider, you may report the occurrence of certain events to SHENZHEN MINDRAY BIO-MEDICAL ELECTRONICS CO., LTD., and possibly to the competent authority of the Member state in which the user and/or patient is established.

These events, include device-related death and serious injury or illness. In addition, as part of our Quality Assurance Program, SHENZHEN MINDRAY BIO-MEDICAL ELECTRONICS CO., LTD. requests to be notified of device failures or malfunctions. This information is required to ensure that SHENZHEN MINDRAY BIO-MEDICAL ELECTRONICS CO., LTD. provides only the highest quality products.

Important Information

1. It is the customer's responsibility to maintain and manage the product after delivery.
2. The warranty does not cover the following items, even during the warranty period:
   (1) Damage or loss due to misuse or abuse.
   (2) Damage or loss caused by force majeure such as fires, earthquakes, floods, and lightning.
   (3) Damage or loss involving the product purchased from a channel other than Mindray or its authorized agency.
3. This product shall not be modified without permission.
4. In no event shall Mindray be liable for the damage caused by alteration, modification, or repair performed by personnel other than those designated by Mindray.
5. At the end of the service life of the product, please contact Mindray or its agency. Mindary shall not be liable for the result if you do not consult Mindray or its agency about disposal of the product.
6. This manual contains warnings regarding foreseeable potential dangers, but you shall always be alert to dangers other than those indicated as well.
7. Mindray shall not be liable for damage or loss that results from negligence or from ignoring the precautions and operating instructions described in this manual.
8. This manual shall always be kept properly so that it can be obtained conveniently as needed.

I. Intended Use

The light cable is used to transmit light during the endoscopic diagnosis and treatment. In the medical field, it is used with the cold light source of endoscopes.

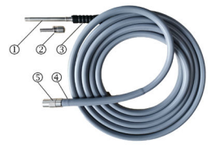
NOTE

- According to the conclusion of clinical evaluation and residual risk evaluation, for the intended patients, there is no known side effects that can occur during or after the use of the medical device. And there is no need for the operator to make extra preparations. Thus, no residual risk associated with using the medical device should be disclosed due to the risk management report.

II. Specifications

Model	LC0005S	LC0003S
Length of light cable	3000 mm ± 10%	
Diameter of exit optical fiber	Φ4.8 mm ± 0.1mm	Φ3.5 mm ± 0.1mm
Minimum bending radius	50mm	

III. Introduction



1. Connector (to light source)
2. Light source adapter
3. Connector sleeve
4. Anti-bending device
5. Connector (to endoscope)

IV. Safety Precautions

⚠ WARNING

Risk of patient injury

- Ensure that all endoscopic equipment is properly connected and functioning before inserting the endoscope into a patient.
- Use this product only along with the endoscopic device specified by Mindray.

⚠ CAUTION

Risk of patient injury

Light source produces a lot of heat, causing a high temperature at the connector and front end of the endoscope. It may result in the following risk:

- ➢ Scalding the patient (for example, when the small cavity of the lumen is exposed to excessive lighting, or the front end of the endoscope is close to the tissue).
- ➢ Burn of the patient or user's skin.
- ➢ Combustion or burning-out of surgical instruments (such as surgical drapes, and plastic materials).

- It is forbidden to place the endoscopic equipment on the patient's skin, flammable materials, or temperature-sensitive materials.
- Adjust the output power of the light source to make the minimum brightness required to illuminate the target area. Avoid excessive exposure to strong light.

⚠ CAUTION

Risk of user injury

When the light source is on, do not look straight at the endoscopic connector of the light cable because that may cause eye injury.

V. Removal After Use

⚠ CAUTION

Risk of user injury

Touching the light cable connector when its temperature is high may cause scalding.

- Cool the light cable after use.

INSTRUCTION

Risk of product damage

Sudden change in temperature may cause damage to the product.

- Cool the light cable after use.
- It is forbidden to use liquid to cool the light cable.

INSTRUCTION

Risk of product damage

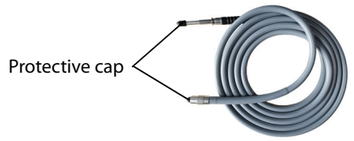
Pulling the cable may damage the product.

- To unplug the light cable from the light source, grasp the plastic shell of the connector.

VI. Cleaning, Disinfection, and Sterilization

Clean, disinfect and sterilize this product regularly based on the local or hospital's regulations related to cleaning, disinfection, and sterilization.

A protective cap is provided together with the product before delivery, as shown in the following figure. Remove the protector before cleaning, disinfection, and sterilization.



1. Cleaning and Disinfection

(1) Disconnect the light cable from the devices, including light source and endoscope.

(2) Use a soft cloth dipped in an appropriate amount of water to remove leftover on the surface of the light cable.

(3) Use a clean soft cloth dipped in an appropriate amount of ethanol (75%) to wipe the surface of the light cable.

(4) Use a dry soft cloth to wipe off detergent on the surface of the light cable, and place the light cable in a ventilated and cool environment to air dry it.

2. Sterilization

The recommended sterilization method is pressure steam sterilization. For loading method of pressure steam sterilization, please refer to the corresponding sterilizer operation instructions.

The procedure is as follows:

(1) Remove the light source adapter from the light cable.

(2) Put the product in a sterilization box, and wrap two layers of sterile sheets to prevent contamination during storage and transportation after sterilization.

(3) Perform pressure steam sterilization as instructed in the manual for using the sterilizer.

The pressure steam sterilization parameters are as follows:

Sterilization process	Temperature	Minimum required time
Pulsation vacuum	132°C - 134°C	4min

⚠ WARNING

Risk of patient/medical staff injury

Improper or inadequate cleaning, disinfection, and sterilization may result in infection of the patient or medical staff or product damage.

- Clean, disinfect, and sterilize the product for the first use and before each use.
- Clean, disinfect and sterilize the product properly according to this manual.

VII. Warranty

If a user or unauthorized person repairs or modifies the product privately, the warranty of the Mindray becomes invalid. The product damage caused by improper use is not covered by the warranty.

VIII. Operating Environment

1. Temperature: 0°C - +35°C
2. Humidity: 30% - 95% RH, non-condensing
3. Atmospheric pressure: 70 kPa - 106 kPa

IX. Storage and Transportation Environment

1. Temperature: -20°C - +60°C
2. Humidity: 30% - 95% RH, non-condensing
3. Atmospheric pressure: 70 kPa - 106 kPa

Put clean and disinfected products in packages capable of isolating the products from bacteria, and store them in a dark, cool, and well-ventilated room.

X. Equipment Symbols

Symbol	Description
MD	Medical Device
	Manufacturer
	Date of manufacture
	TYPE CF APPLIED PART
LOT	Batch code
	Temperature limit
	Humidity limitation
	Atmospheric pressure limitation
CE	The product bears CE mark indicating its conformity with the provisions of the Council Directive 93/42/EEC concerning medical devices and fulfils the essential requirements of Annex I of this directive. Note: The product complies with the Council Directive 2011/65/EU.
	Refer to instruction manual/booklet
EC REP	Authorized representative in the European community
	Comply with the requirements of Directive 2012/19/EU Waste Electrical & Electronic Equipment

Company Contact

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mindray

LC0005S/LC0003S

导光束
使用说明书

Light Cable
Instructions for Use

046-020513-00(3.0)

声明

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本说明书详细地介绍了产品的用途、功能和操作使用。使用本产品之前，请认真阅读并理解本说明书中的内容，以保证能够正确地使用本产品，并确保病人和操作者安全。在下列条件都满足的情况下，迈瑞公司将对产品的安全性、可靠性和性能负责：

(1) 按照《使用说明书》使用本产品。

(2) 非人为因素造成的产品损坏。人为因素是指不小心摔落、蓄意破坏等。

确实需要向迈瑞公司退货时，请联系迈瑞公司售后服务部，告知产品型号和系列号，并简述原因。若产品的系列号模糊不可辨认，退货请求将不予接受。

说明书编制日期：2021 年 5 月

mindray和**迈瑞**是迈瑞公司的注册商标或者商标。

重要信息

1. 购买本产品后，客户对产品的维护和管理负全部责任。
2. 即使在保修期内，对下列情况迈瑞将不负责保修：
   (1) 由于操作不当或故意损坏造成的损坏。
   (2) 由于不可抗力如火灾、地震、洪水、闪电等造成的损坏。
   (3) 不是从迈瑞公司或指定的分销商手中购买的迈瑞产品，如果发生损坏，将不予保修。
3. 禁止擅自对本产品做任何改动。
4. 非迈瑞公司指定人员对设备进行的重新改装、改动或维修造成的损坏，迈瑞将不负任何责任。
5. 产品报废处理前请联系迈瑞公司或其代理机构。未向迈瑞公司或其代理机构咨询而对产品进行处理，迈瑞公司不对其所产生的后果负责。
6. 本说明书对可以预见的危险做出了警告。但请在任何时间保持警惕以防出现其他危险。
7. 由于疏忽没有按照说明书中的指引而产生的问题，迈瑞公司将不对此负责。
8. 请妥善保管本说明书，以确保管理和操作人员可以随时查阅。

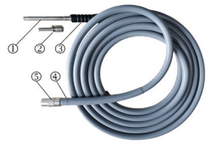
一、预期用途

导光束用于在内窥镜诊断和治疗中传输光线。医学领域中，它与医用内窥镜冷光源配套使用。

二、主要技术参数

型号	LC0005S	LC0003S
导光束长度	3000 mm ± 10%	
出射端光纤直径	Φ4.8 mm，允差 ±0.1mm	Φ3.5 mm，允差 ±0.1mm
最小可弯曲半径	50mm	

三、导光束结构



1. 导光束接头（光源侧）
2. 导光束光源适配套
3. 接头套管
4. 防折弯装置
5. 导光束接头（内窥镜侧）

四、安全注意事项

⚠ 警告

患者受伤的风险

- 将内窥镜插入患者体内之前，应始终正确连接内窥镜设备。
- 本产品仅可与迈瑞指定的内窥镜设备配合使用。

⚠ 小心

患者受伤的风险

光源会产生大量热量，导致内窥镜接头与先端部温度升高。可能会存在以下风险：

- ➢ 患者组织烫伤（例如，管腔较小的腔隙暴露在过强的照明下，或内镜先端部与组织距离过近）。
- ➢ 患者或用户皮肤烧伤。
- ➢ 手术器械燃烧或烧毁（例如，手术铺巾，塑料材料等）。

- 禁止将内窥镜设备放置在患者皮肤、可燃性材料或对温度敏感的材料上。
- 调节光源的输出功率，达到照亮目标区域所需的最低亮度。避免强光的过度暴露。

⚠ 小心

用户受伤的风险

在光源打开的情况下，直视导光束的内镜接头可能导致眼睛损伤。因此，光源打开的情况下，禁止直视导光束的内镜接口。

五、使用后拆卸

⚠ 小心

用户受伤的风险

导光束上的接头温度过高时，触摸接头可能会导致烫伤。

- 使用后应使导光束冷却。

说明

产品损坏的风险

高温导光束的温度急剧变化会损伤产品。

- 使用后应使导光束冷却。
- 禁止使用液体冷却导光束。

说明

产品损坏的风险

拉拽缆线会损坏产品。

- 从光源上拔下导光束时，应拉动接头的塑料外壳。

六、清洗、消毒和灭菌

请根据当地或医院关于医疗设备清洁消毒的规定定期对本产品进行清洁、消毒和灭菌。

本产品出厂时配送光纤保护套，如下图所示，清洁消毒及灭菌前请先取下保护套。

光纤保护套

1. 清洁和消毒

(1) 断开导光束与光源、内窥镜等设备的连接。
(2) 使用一块软布蘸取适量的水除去导光束表面的残留物。
(3) 使用干净的软布蘸取适量乙醇（75%）擦拭导光束表面。
(4) 用干的软布擦去导光束表面的清洁剂，并将导光束置于通风阴凉的环境下风干。

2. 灭菌

推荐使用经验证过的灭菌方法：压力蒸汽灭菌。

压力蒸汽灭菌的装载方法，请参照相应灭菌器的操作说明。

步骤如下：

(1) 卸下导光束光源适配套。
(2) 将产品放置在灭菌盒中，并包裹两层无菌单，以防止灭菌后在存放、运输过程中染菌。
(3) 参照灭菌器的使用说明书执行压力蒸汽灭菌。

压力蒸汽灭菌器灭菌参数如下：

设备类别	温度	所需最短时间
预真空式	132ºC ~ 134ºC	4min

⚠ 警告

患者 / 医务人员受伤的风险

清洗、消毒和灭菌不当或不充分可能导致患者或医务人员感染和产品损坏。

- 首次及此后每次使用产品之前，应该进行清洗、消毒和灭菌。
- 按照本说明书，正确进行产品清洗、消毒和灭菌。

七、保修

如果用户或未经授权的人员私自维修或改造产品，则迈瑞公司的保修将失效。因使用不当导致的产品损坏不在保修范围之内。

八、工作环境

1. 温度：0ºC ~ +35ºC
2. 湿度：30% ~ 85% RH（无凝露）
3. 大气压：70 kPa ~ 106 kPa

九、存储和运输环境

1. 温度：-20ºC ~ +60ºC
2. 湿度：30% ~ 95% RH（无凝露）
3. 大气压：70 kPa ~ 106 kPa

将清洗和消毒处理后的产品置于能隔离细菌的包装中，存放在避光、阴冷、通风良好的室内。

十、符号

符号	说明
	注意！查阅随机文件
	生产日期
	CF 型应用部分
	批次代码
	温度极限
	湿度极限
	大气压力极限
	电子产品环保使用年限（20 年）

售后服务单位

单位名称：深圳迈瑞生物医疗电子股份有限公司
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电话：+86 755 81888998
传真：+86 755 26582680

May 22, 2026

LETTER OF DECLARATION

To: Emergency Medicine Institute

For tender nr: 21606655

Date of tender May 22, 2026

We, Shenzhen Mindray Bio-Medical Electronics Co., Ltd., with office at Floor1-4，Mindray Building, Keji 12th Rd. South, Hi-tech Park, Nanshan, Shenzhen, P. R. China, manufacturer of **Light cable (LC0005S and LC0003S) and Light Source (HB500, HB500R, HB300, HB100),**

We hereby declare that

the light source socket and fiber-optic cable connector of our product have been tested and verified to be compatible with Karl Storz fiber-optic cables.

Chen Tao
Senior Sales & Marketing Manager of Endoscopic Surgery Products, International Region
Shenzhen Mindray Bio-Medical Electronics Co., Ltd.

SHENZHEN MINDRAY BIO-MEDICAL ELECTRONICS CO.,LTD
Mindray Building, Keji 12th Road South, High-tech Industrial Park, Nanshan,

Shenzhen 518057，P.R. China

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Website: www.mindray.com

www.mindray.com

P/N:ENG-Rigid Endoscope-210285X4P-20230822

mindray

healthcare within reach

mindray

Rigid Endoscope

Small Diameter, Big Vision

Small Diameter, Big Vision

The heatable front end provides effective anti-fogging, which helps deliver smooth surgery.

The Standard 300mm and Lengthened 450mm Type are adaptable for use in various surgeries.

A large depth of field of 3-200mm provides consistently clear views, eliminating the need for repeated refocusing.

The control body has been specially polished to retain grease more easily, allowing for smooth entry and exit of trocars.

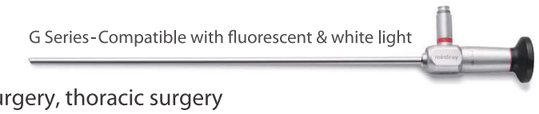
A channel diameter of Φ5.45mm ensures greater luminous flux while smoothly passing through a variety of 5mm-size trocars.

The format size is consistent with that of the Φ10mm endoscope, which enables easy full-screen view.

Rigid Endoscope

Standard 5mm Type

G Series-Compatible with fluorescent & white light

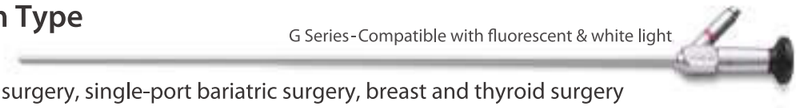


Recommended Surgery: Single-port gynecologic surgery, thoracic surgery

Product	Diameter	Working Length	Field of View	Code
0°	5.45mm	300mm	85°	G 00500A
30°	5.45mm	300mm	85°	G 00530A

Lengthened 5mm Type

G Series-Compatible with fluorescent & white light



Recommended Surgery:
Single-port gynecologic surgery, single-port bariatric surgery, breast and thyroid surgery

Product	Diameter	Working Length	Field of View	Code
0°	5.45mm	450mm	85°	G 10500A
30°	5.45mm	450mm	85°	G 10530A

G Series-Compatible with fluorescent & white light

Standard 10mm Type

M Series-Applicable with white light

Recommended Surgery: General Surgery

Product	Diameter	Working Length	Field of View	Code
0°	10mm	321mm	80°	M 01000A / G 01000A
30°	10mm	321mm	80°	M 01030A / G 01030A

Rigid Endoscope Tray

Product Name	Placed Items	Dimensions (mm)	Code
Small Rigid Endoscope Tray	Standard 5 or 10mm Rigid Endoscope	496×90×44	X TR500944
Long Rigid Endoscope Tray	Lengthened 5mm or 3D Electronic Endoscope	643×158×75	X TR641675

Rigid Endoscope

Operator's Manual

(M 01030A/M 01000A/M 01030PA/M 01000PA/G 01030A/
G 01000A/G 01030PA/G 01000PA/M 00530A/G 00530A/
M 00500A/G 00500A/M 10530A/G 10530A/M 10500A/
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M 10530PA/G 10530PA/M 10500PA/G 10500PA)

CE 0123

- Release time: 2023-5
- Revision: 1.0

NOTE

- **"PA" in the model indicates that endoscope of this model is not configured with light cable adapter, Storz.**
- **In addition to the difference of basic parameters above, there are differences in some optical parameters between the 10 mm series and 5 mm series.**

2.11 Product Components

Taking M 00500A as an example, this product consists of the following parts:

(1)	Eyepiece
(2)	Main body
(3)	Light cable connector (available for ACMI/Olympus Pro light cables)
(4)	Light cable adapter (available for Mindray/Richard Wolf light cables)
(5)	Light cable adapter (available for STORZ light cables)
(6)	Objective lens

4.4.2 Ethylene Oxide Sterilization

It is recommended to use the following validated ethylene oxide sterilization parameters:

EO concentration	Temperature	Humidity	Sterilization time
100%	54 °C	50% RH	360 min

To ensure the ethylene oxide residues at a level that does no harm to the human body, the sterilized endoscope should go through a 12-hour resolution at a well-ventilated room with a temperature no less than 40°C before reuse.

Sterilization tolerance cycle: 500 times.

NOTE

- **After long time sterilization, the color of the color ring will fade, which is a normal phenomenon. It will not affect the sealing performance and the whole machine function.**

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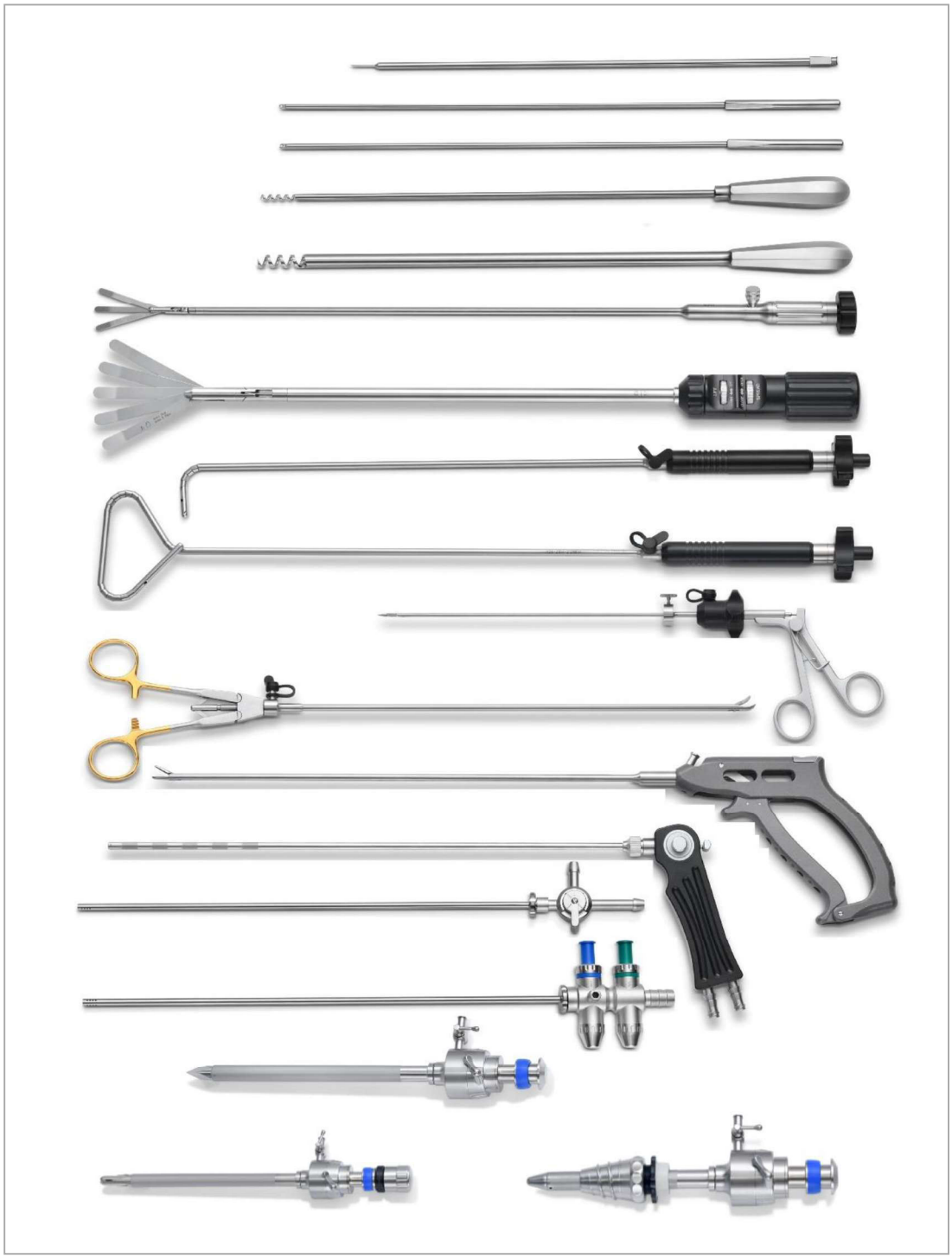
Datasheet of Reusable Laparoscopic Instrument Kit



	(three-blade and five-blade forceps)		Connecting Rod	Available for Component Code:221-05923	06Cr19Ni10	YY/T 0294.1-2016
				Available for Component Code:221-55923	20Cr13	YY/T 0294.1-2016
		Rod			06Cr19Ni10	YY/T 0294.1-2016
10	ENDO-Retractor	Retractor Head			20Cr13	YY/T 0294.1-2016
		Rod			20Cr13	YY/T 0294.1-2016
11	Myoma Drill	Drill Bit			20Cr13	YY/T 0294.1-2016
		Rod			06Cr19Ni10	YY/T 0294.1-2016
12	Veress Needle	Inner Tube			06Cr19Ni10	YY/T 0294.1-2016
		Outer Tube			06Cr19Ni10	YY/T 0294.1-2016
13	Knot Pusher	Jaw			06Cr19Ni10	YY/T 0294.1-2016
		Rod			06Cr19Ni10	YY/T 0294.1-2016

Table 1:

Material Compositions of Corresponding Grades listed in DIN17660 and DIN17663 Standards

Material Grade	Chemical Composition Mass Fraction (%)									
		Cu	Pb	Zn	Al	Fe	Ni	Sn	Mn	Total Impurities
CuZn39Pb3	Min Max	57.0 59.0	2.5 3.5	Margin	- 0.1	- 0.5	- 0.5	- 0.4	-	- 0.2
CuNi7Zn39Mn5Pb3	Min Max	44.0 48.0	2.0 4.0	Margin	-	- 0.3	6.0 8.0	-	4.0 6.0	- 0.4

3. Diagram of Patient-contacted Parts of the Instruments

The patient-contacted parts of the instruments are highlighted with the dotted lines below, with the corresponding structures and materials shown as follows:

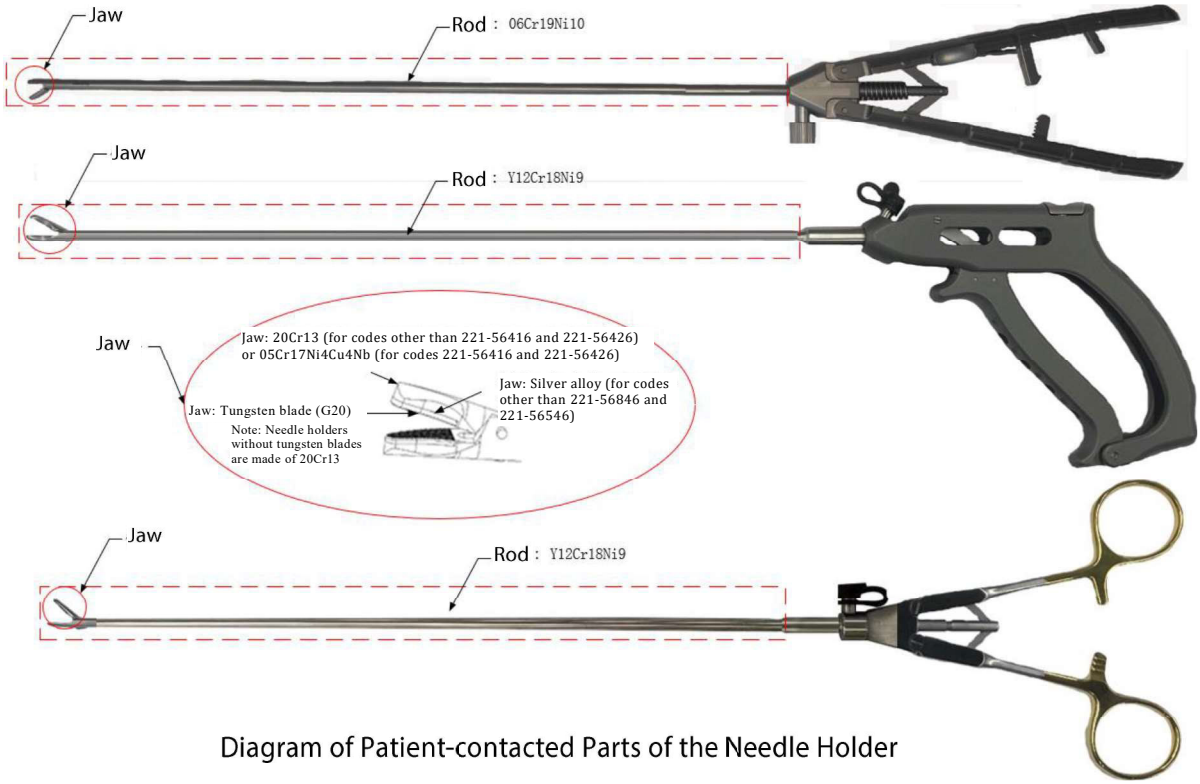


Diagram of Patient-contacted Parts of the Needle Holder

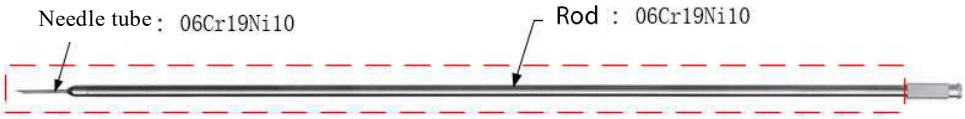


Diagram of Patient-contacted Parts of the Puncture Injection Needle

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P/N:ENG-Reusable Laparoscopic Instruments-210285X20P-20241122

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healthcare within reach

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Reusable Laparoscopic Instruments

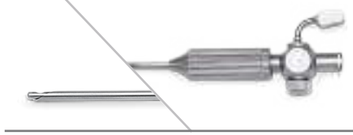
User Friendly & Future Proof

Trocars

Product	Description	Dimension	Code	
	Pyramidal Trocar	ϕ 5X95	221-51155	👍
		ϕ 10X95	221-01155	👍
		ϕ 12X95	221-81155	
		ϕ 5X150	221-53155	👍
		ϕ 10X150	221-03155	👍
		ϕ 12X150	221-83155	👍
	Auto Shield Trocar	ϕ 5X95	221-51255	
		ϕ 10X95	221-01255	
		ϕ 12X95	221-81255	
		ϕ 5X150	221-53255	
		ϕ 10X150	221-03255	
		ϕ 12X150	221-83255	
	Pyramidal Trocar with Screw	ϕ 5X95	221-51165	
		ϕ 10X95	221-01165	
		ϕ 12X95	221-81165	
	Auto Shield Trocar with Screw	ϕ 5X95	221-51265	
		ϕ 10X95	221-01265	
		ϕ 12X95	221-81265	

Trocars

- To avoid blood contamination when inserting the telescope and to reduce times of cleaning the tip of the telescope by controlling the sealing flap opening and closing.

Product	Description	Dimension	Code	
	Veress Needle	ϕ 2X120	221-21127	
		ϕ 2.7X150	221-27157	👍
	Reducer Sleeve	ϕ 10 - ϕ 5	221-01785	
		ϕ 12 - ϕ 5	221-81785	
	Sealing Cap	ϕ 5	221-50925	👍
		ϕ 10	221-00925	👍
		ϕ 12	221-80925	👍
	Reducer	ϕ 10 - ϕ 5	221-00725	👍
		ϕ 12 - ϕ 5	221-80725	👍
	Reducer	ϕ 10 - ϕ 5	221-00715	

The "Relia" Reusable Electrode Surgical Instruments

Safe

Insulated sleeve exposes a shorter metal base to avoid the accidental damage caused by electrical leakage.

Durable

Strictly selected materials plus special production processes greatly extend the product's life.

Ergonomic

One-click to disassemble into three parts for more thorough cleaning and sterilization.

Dissecting and Grasping Forceps

- **Diamond serration clamp teeth**
  Stronger grasping force with less tissue damage
- **Shorter metal base**
  Less unintentional electrical injury
- **No obvious bulge at the opening joint**
  Reduce blood and tissue residues, easy to clean and reduce cross infection

Product	Description	Dimension	Code	
 16mm	KELLY Dissecting and Grasping forceps, Maryland	ϕ 5X360	222-5S3013	👍
		ϕ 5X360, With Ratchet	222-5T3013	
		ϕ 5X430	222-5S4013	
		ϕ 5X430, With Ratchet	222-5T4013	
 22mm	KELLY Dissecting and Grasping forceps, long, Maryland	ϕ 5X360	222-5S3023	👍
		ϕ 5X360, With Ratchet	222-5T3023	
		ϕ 5X430, With Ratchet	222-5T4023	
 16mm	Dissecting and Grasping forceps, right-angled	ϕ 5X360	222-5S3123	👍
		ϕ 5X360, With Ratchet	222-5T3123	
		ϕ 5X430, With Ratchet	222-5T4123	
 23mm	Straight Dissecting and Grasping forceps, atraumatic	ϕ 5X360	222-5S3043	
		ϕ 5X360, With Ratchet	222-5T3043	
 43mm	Dissecting and Grasping forceps, atraumatic	ϕ 10X360	222-0S3103	
		ϕ 10X360, With Ratchet	222-0T3103	
 26mm	Dissecting and Grasping forceps, right-angled	ϕ 10X360	222-0S3133	👍
		ϕ 10X360, With Ratchet	222-0T3133	

Grasping Forceps


No Ratchet


With Ratchet

Product	Description	Dimension	Code	
 18mm	Bowel Grasper, fenestrated, short	ϕ 5X360	222-5S3213	👍
		ϕ 5X360, With Ratchet	222-5T3213	
 24mm	Atraumatic Grasping forceps	ϕ 5X360	222-5S3633	👍
		ϕ 5X360, With Ratchet	222-5T3633	
		ϕ 5X430, With Ratchet	222-5T4633	
 27mm	CROCE-OLMI Grasping forceps, atraumatic, curved	ϕ 5X360	222-5S3453	👍
		ϕ 5X360, With Ratchet	222-5T3453	
		ϕ 5X430, With Ratchet	222-5T4453	
 26mm	Grasping forceps, w specially fine atraumatic serration	ϕ 5X360	222-5S3473	
		ϕ 5X360, With Ratchet	222-5T3473	
		ϕ 5X430	222-5S4473	
		ϕ 5X430, With Ratchet	222-5T4473	
 37mm	Bowel Grasper, fenestrated	ϕ 5X360	222-5S3303	👍
		ϕ 5X360, With Ratchet	222-5T3303	
 18mm	BABCOCK Grasping forceps	ϕ 5X360	222-5S3553	
		ϕ 5X360, With Ratchet	222-5T3553	👍
 14mm	Grasping forceps, 2X4 teeth	ϕ 5X360	222-5S3393	
		ϕ 5X360, With Ratchet	222-5T3393	

Grasping Forceps

No Ratchet

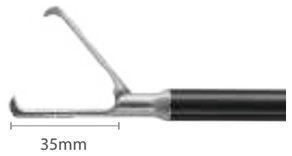
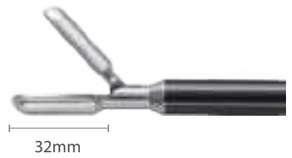
With Ratchet

Product	Description	Dimension	Code
 28mm	Grasping forceps, atraumatic	ϕ 5X360	222-5S3333
		ϕ 5X360, With Ratchet	222-5T3333
 15mm	VANCAILLIE Adhesion Forceps, one jaw fenestrated	ϕ 5X360	222-5S3493
		ϕ 5X360, With Ratchet	222-5T3493
 15mm	MANHES biopsy forceps	ϕ 5X360	222-5S3903
		ϕ 5X360, With Ratchet	222-5T3903
 14mm	MANHES Grasping forceps, "tiger-jaws", 2X4 teeth	ϕ 5X360	222-5S3363
		ϕ 5X360, With Ratchet	222-5T3363
 16mm	Claw forceps, 2X3 teeth, short	ϕ 10X360	222-0S3403
		ϕ 10X360, With Ratchet	222-0T3403
 34mm	SAWALHE Tissue Grasping forceps	ϕ 10X360	222-0S3423
		ϕ 10X360, With Ratchet	222-0T3423
 30mm	BABCOCK Grasping forceps	ϕ 10X360	222-0S3573
		ϕ 10X360, With Ratchet	222-0T3573

Grasping Forceps

No Ratchet

With Ratchet

Product	Description	Dimension	Code	
 35mm	Claw forceps, 2X3 teeth	ϕ 10X360	222-0S3413	
		ϕ 10X360, With Ratchet	222-0T3413	👍
 32mm	Spoon forceps	ϕ 10X360	222-0S4883	
		ϕ 10X360, With Ratchet	222-0T4883	👍
 13mm	VANCAILLIE Oviduct Forceps	ϕ 5X360	222-5S3583	👍
		ϕ 5X360, With Ratchet	222-5T3583	
 18mm	Dissecting and Grasping forceps, “alligator jaws”	ϕ 5X360	222-5S3773	
		ϕ 5X360, With Ratchet	222-5T3773	
 31mm	DeBAKEY Grasping forceps, curved and slender jaws	ϕ 5X360	222-5S3813	
		ϕ 5X360, With Ratchet	222-5T3813	
 19mm	Grasping forceps, atraumatic, spoon-shaped	ϕ 5X360	222-5S3223	
		ϕ 5X360, With Ratchet	222-5T3223	
 14mm	MANHES Dissecting and Grasping forceps, "duckbill"	ϕ 5X360	222-5S3283	
		ϕ 5X360, With Ratchet	222-5T3283	

Monopolar Scissors

- **Sharp**

  The sharpest blade enables fast cutting.

- **Smooth**

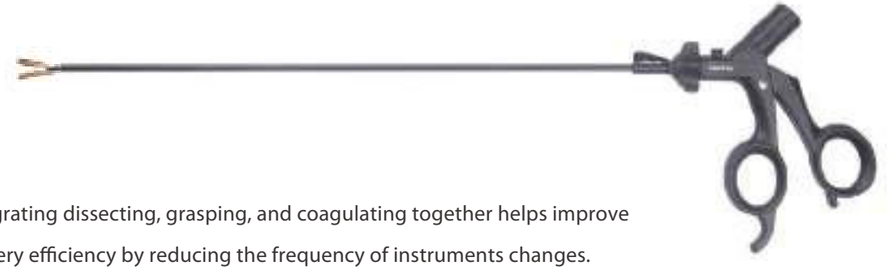
  Involute design of blade line ensures more smooth cutting.

- **Durable**

  The vacuum heat treatment process makes sure that the metal hardness control accuracy reaches HRC1 (Rockwell hardness), increasing the metal life by 3-4 times compared with the traditional method.

Product	Description	Dimension	Code	
	METZENBAUM Scissors, curved	ϕ 5X360	222-5S3022	👍
		ϕ 5X430	222-5S4022	👍
	Scissors, spoon-shaped blades, serrated, curved	ϕ 5X360	222-5S3012	
		ϕ 5X430	222-5S4012	
	Scissors, straight	ϕ 5X360	222-5S3092	
		ϕ 5X430	222-5S4092	

Bipolar Dissecting Forceps



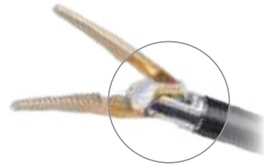
Integrating dissecting, grasping, and coagulating together helps improve surgery efficiency by reducing the frequency of instruments changes.

- **Innovative anti-sticking:**

  Sticking prevention with coated jaw.

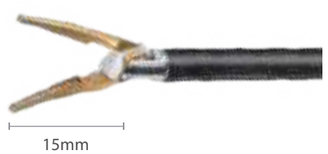
- **Strong grasping:**

  Enhanced force with wider opening angle to achieve better grasping.



- **Guaranteed Safety:**

  Advanced insulation design guarantees the safety and reliability of bipolar coagulation.

Product	Description	Dimension	Code	
	Bipolar Straight Dissecting Forceps	ϕ 5X360	222-5S3011	👍
		ϕ 5X430	222-5S4011	👍
	Bipolar Curved Maryland Dissecting Forceps	ϕ 5X360	222-5S3021	👍
		ϕ 5X430	222-5S4021	

Monopolar Electrodes

Product	Description	Dimension	Code	
	Hook Tip Coagulation Electrode	ϕ 5X330	222-51110	👍
	Ball Tip Coagulation Electrode	ϕ 5X330	222-51220	
	Spatula Tip Coagulation Electrode	ϕ 5X330	222-51440	👍
	Rod Tip Coagulation Electrode	ϕ 5X330	222-51610	👍

Cables

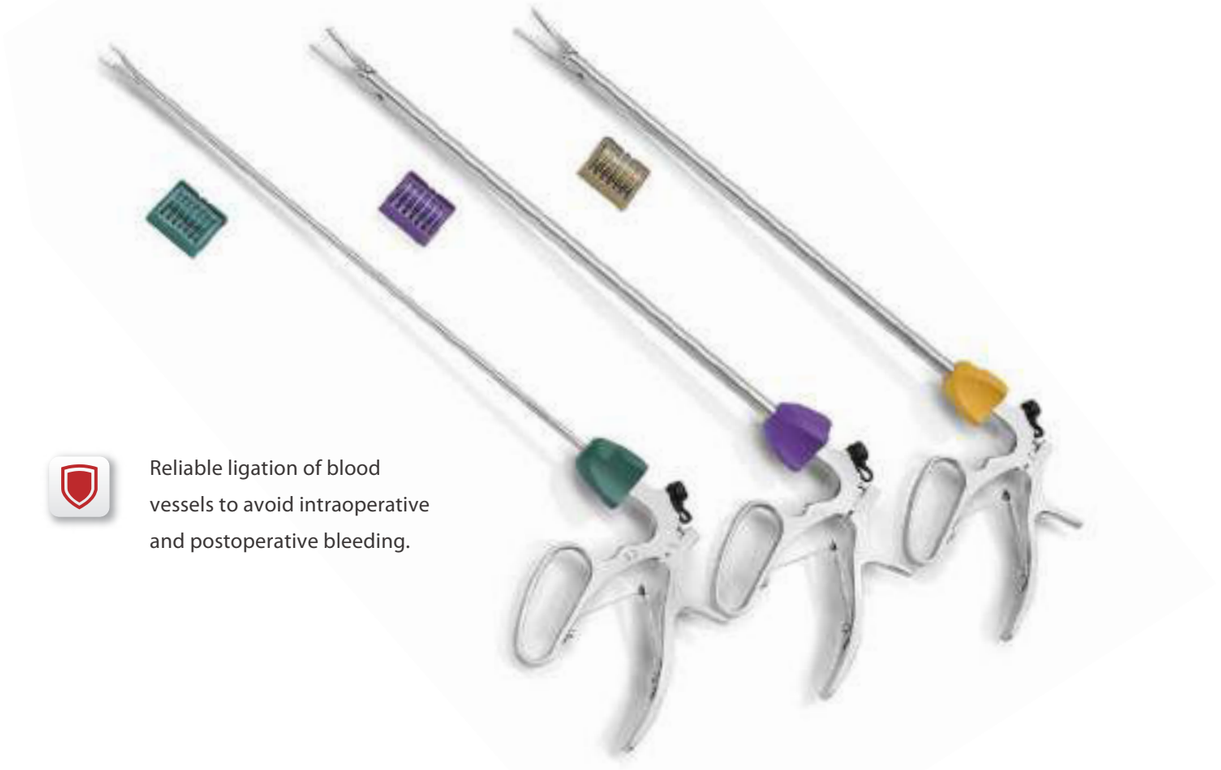
All cables are autoclavable.

Product	Description	Dimension	Code	
	Monopolar cable	3200mm	999-030	👍
	Bipolar Cable	3200mm	999-031	👍

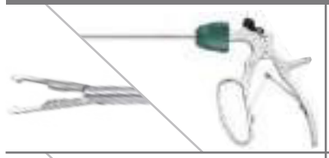
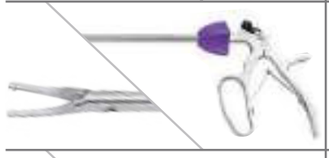
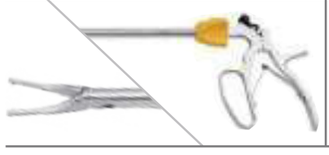
Instrument Trays

Product	Description	Dimension	Code	
	Double-decker Instrument Tray	540X250X100	X TR5425A0	
	Long Double-decker Instrument Tray	600X250X100	X TR6025A0	👍
	Long Three-decker Instrument Tray	600X250X140	X TR6025E4	

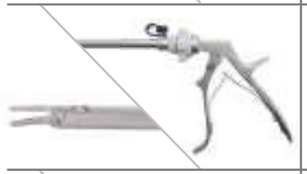
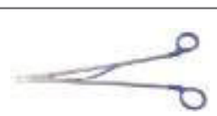
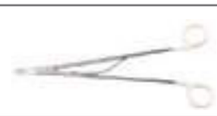
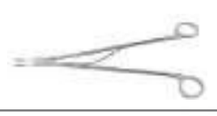
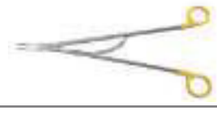
Clip Appliers



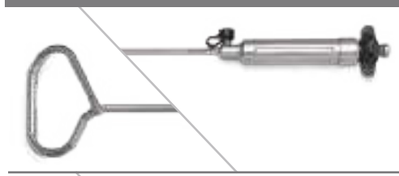
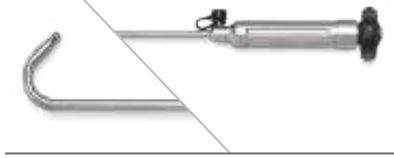
Reliable ligation of blood vessels to avoid intraoperative and postoperative bleeding.

Product	Description	Dimension	Code	
	Endo Applier for Medium Large polymer locking Clip	ϕ 5X330	221-55636	
	Endo Applier for Large polymer locking Clip	ϕ 10X330	221-05646	
	Endo Applier for Extra Large polymer locking Clip	ϕ 10X330	221-05656	

Clip Appliers

Product	Description	Dimension	Code	
	Endo Applier for Small Titanium Clip, Single action	ϕ 5X330	221-55116	
	Endo Applier for Medium Titanium Clip, Single action	ϕ 10X330	221-05126	
	Endo Applier for Medium Large Titanium Clip, Single action	ϕ 10X330	221-05136	
	Endo Applier for Large Titanium Clip, Single action	ϕ 10X330	221-05146	
	Open Surgery Applier for Small Titanium Clip	28 cm	221-00516	
	Open Surgery Applier for Small Titanium Clip	18 cm	221-01516	
	Open Surgery Applier for Medium Titanium Clip	28 cm	221-00526	
	Open Surgery Applier for Medium Titanium Clip	23 cm	221-01526	
	Open Surgery Applier for Medium Large Titanium Clip	28 cm	221-00536	
	Open Surgery Applier for Large Titanium Clip	28 cm	221-00546	

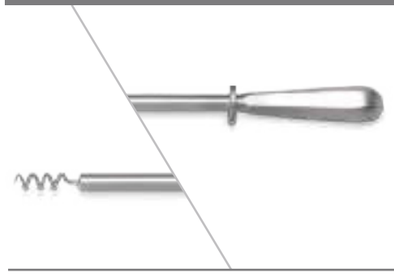
ENDO-Retractors

Product	Description	Dimension	Code	
	ENDO-Retractor	ϕ 5X360	221-53013	
	ENDO-Retractor	ϕ 5X360	221-53023	👍

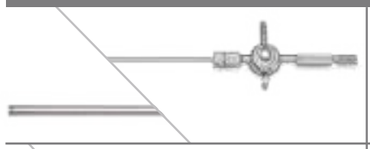
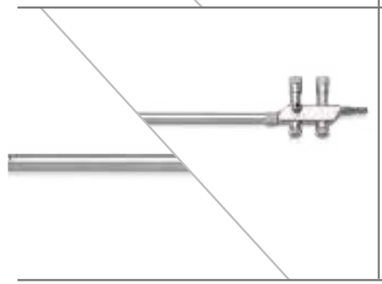
Fans Dissecting Forceps

Product	Description	Dimension	Code	
	3 Finger Retractor	ϕ 5X330	221-55923	
	5 Finger Retractor	ϕ 10X330	221-05923	👍

Myoma Drills

Product	Description	Dimension	Code	
	Myoma Drill	ϕ 5X330	221-53109	👍
		ϕ 5X420	221-54109	
		ϕ 10X330	221-03109	
		ϕ 10X420	221-04109	

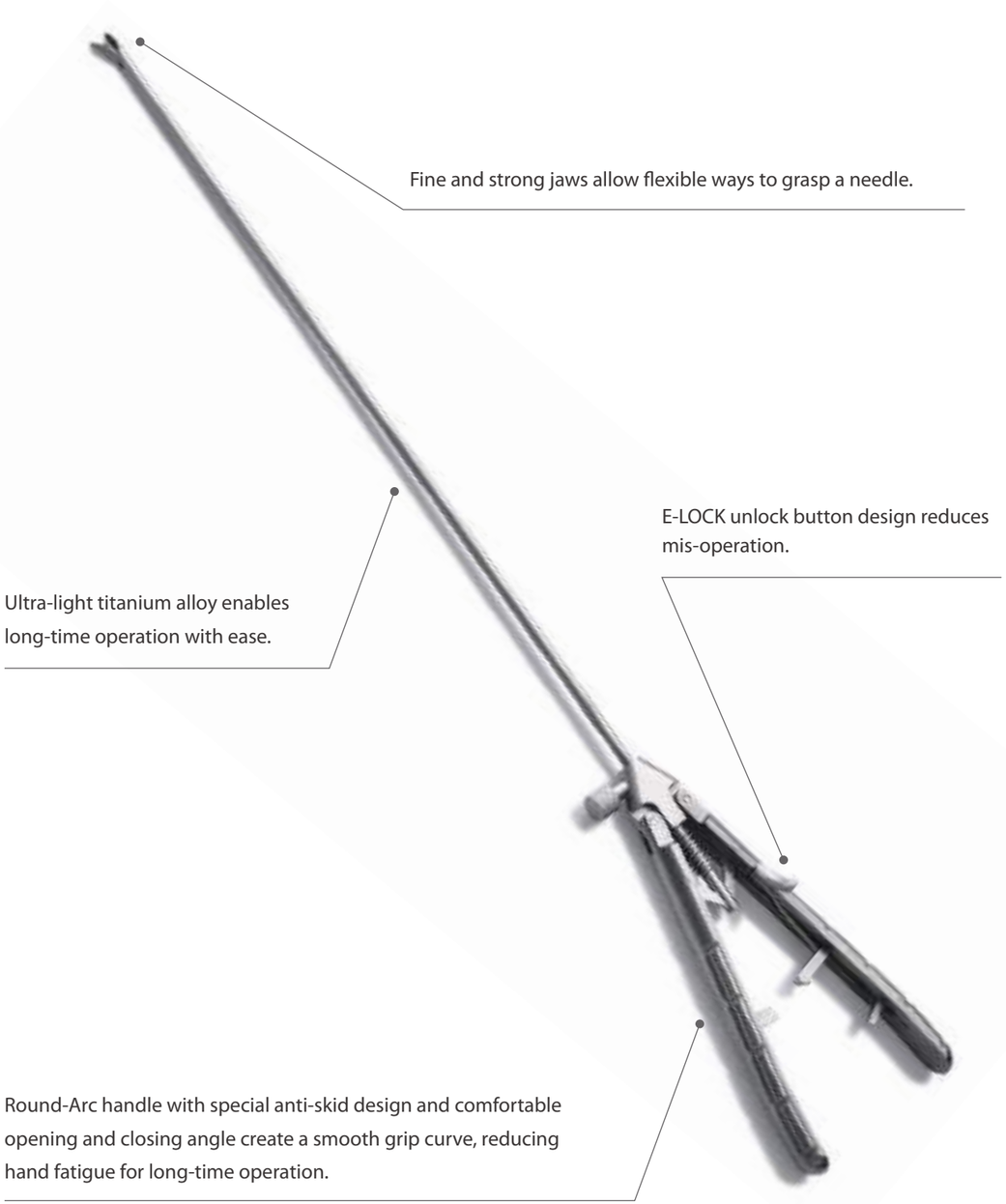
Suction & Irrigation Apparatus

Product	Description	Dimension	Code	
	Suction and irragation	ϕ 5X330	221-53114	
	Suction and irragation	ϕ 5X330	221-53224	👍
		ϕ 10X330	221-03224	

Puncture Injection Needles

Description	Pinhead	Dimension	Code	
Puncture Injection Needle（7#）	0.7mm	ϕ 5X330	221-53015	
Puncture Injection Needle（9#）	0.9mm	ϕ 5X330	221-53025	
Puncture Injection Needle（13#）	1.3mm	ϕ 5X330	221-53035	👍
Puncture Injection Needle（16#）	1.6mm	ϕ 5X330	221-53055	
Puncture Injection Needle（18#）	1.8mm	ϕ 5X330	221-53065	

Needle Holders



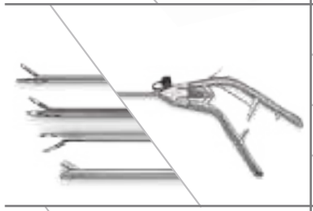
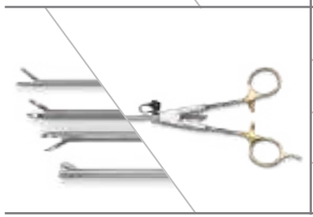
Fine and strong jaws allow flexible ways to grasp a needle.

E-LOCK unlock button design reduces mis-operation.

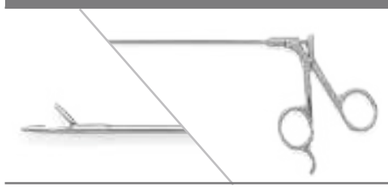
Ultra-light titanium alloy enables long-time operation with ease.

Round-Arc handle with special anti-skid design and comfortable opening and closing angle create a smooth grip curve, reducing hand fatigue for long-time operation.

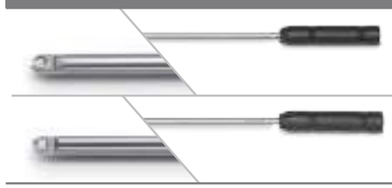
Needle Holders

Product	Description	Dimension	Code	
	V Handle Straight Needle Holder	ϕ 5X330	221-56416	
	V Handle Left Curved Needle Holder	ϕ 5X330	221-56426	👍
	Pistol Handle Straight Needle Holder	ϕ 5X330	221-56516	
	Pistol Handle Left Curved Needle Holder	ϕ 5X330	221-56526	
	Pistol Handle Right Curved Needle Holder	ϕ 5X330	221-56536	
	Pistol Handle Needle Holder with Reposition Function	ϕ 5X330	221-56546	
	O Handle Straight Needle Holder	ϕ 5X330	221-56816	
		ϕ 5X450	221-56876	
	O Handle Left Curved Needle Holder	ϕ 5X330	221-56826	
		ϕ 5X450	221-56886	👍
	O Handle Right Curved Needle Holder	ϕ 5X330	221-56836	
	O Handle Needle Holder with Reposition Function	ϕ 5X330	221-56846	

Suture Fascia Fix Forceps

Product	Description	Dimension	Code	
	Suture Fascia Fix Forceps	ϕ 3X200	221-32013	👍

Knot Pushers

Product	Description	Note	Dimension	Code	
	Knot Pusher	Half Ring	ϕ 4X330	221-43019	👍
		Full Ring	ϕ 4X330	221-43029	

Reusable Laparoscopic Instruments

Instruction Manual

Statement

Mindray shall be responsible for the safety, reliability and performance of the product provided that the following conditions are met:

- This product is used in accordance with the Instruction Manual.
- Product damage caused by non-human factors (human factors refer to accidental falls, deliberate damage, etc.).

If you really need to return the product to Mindray, please contact the after-sales service department of Mindray, inform the product model and serial number, and briefly explain the reason.

The "three guarantees" of the instrument and after-sales service will be implemented according to the product "three guarantees" and after-sales service contract agreed and signed between the distribution unit and the manufacturing company.

After-sales service unit: Hangzhou Mindray Medical Technology Co., Ltd.
After-sales unit address: No.2 Fengxiang Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou City
After-sales unit tel: 0571-58504222

Compilation date: 2024-11

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Website: www.mindray.com

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Address: Eiffestrasse 80, 20537 Hamburg, Germany
Tel: 0049-40-2513175/2513174

1. Product Structure

The instrument consists of Endo Applier for Clips（Endo Applier for Titanium Clips, clip applier）, needle holder, Suture Fascia Fix Forceps, trocar, converter, Puncture Injection Needle, Suction and irrigation, Finger Retractor , ENDO-Retractor, Myoma Drill, veress needle and knot pusher, with seals as auxiliary components.

Collectively	Product Name	Specfication	Product Model
Endo Applier for Titanium Clips	Endo Applier for Small Titanium Clip, Single action	φ5X330	221-55116
	Endo Applier for Medium Titanium Clip, Single action	φ10X330	221-05126
	Endo Applier for Medium Large Titanium Clip, Single action	φ10X330	221-05136
	Endo Applier for Large Titanium Clip, single action	φ10X330	221-05146
Clip applier	Endo Applier for Medium Large Hemolock Clip	φ5X330	221-55636
	Endo Applier for Large Hemolock Clip	φ10X330	221-05646
	Endo Applier for Extra Large Hemolock Clip	φ10X330	221-05656
Needle holder	O Handle Straight Needle Holder	φ5X330	221-56816
	O Handle Straight Needle Holder	φ5X450	221-56876
	O Handle Left Curved Needle Holder	φ5X330	221-56826
	O Handle Left Curved Needle Holder	φ5X450	221-56886
	O Handle Right Curved Needle Holder	φ5X330	221-56836
	O Handle Needle Holder with Reposition Function	φ5X330	221-56846
	Pistol Handle Straight Needle Holder	φ5X330	221-56516
	Pistol Handle Left Curved Needle Holder	φ5X330	221-56526
	Pistol Handle Right Curved Needle Holder	φ5X330	221-56536
	Pistol Handle Needle Holder with Reposition Function	φ5X330	221-56546
	V Handle Straight Needle Holder	φ5X330	221-56416
	V Handle Left Curved Needle Holder	φ5X330	221-56426
Suture Fascia Fix Forceps	Suture Fascia Fix Forceps	φ3X200	221-32013
Trocar	Trocar	φ5X95	221-51155
	Trocar	φ10X95	221-01155
	Trocar	φ12X95	221-81155
	Trocar	φ5X150	221-53155
	Trocar	φ10X150	221-03155
	Trocar	φ12X150	221-83155
	Trocar	φ5X95	221-51255
	Trocar	φ10X95	221-01255
	Trocar	φ12X95	221-81255
	Trocar	φ5X150	221-53255
	Trocar	φ10X150	221-03255
	Trocar	φ12X150	221-83255
	Trocar	φ5X95	221-51165
	Trocar	φ10X95	221-01165
	Trocar	φ12X95	221-81165

	Trocar	φ5X95	221-51265
	Trocar	φ10X95	221-01265
	Trocar	φ12X95	221-81265
converter	Reducer Sleeve	φ10-φ5	221-01785
	Reducer Sleeve	φ12-φ5	221-81785
	Reducer	φ10-φ5	221-00715
	Reducer	φ10-φ5	221-00725
	Reducer	φ12-φ5	221-80725
Puncture Injection Needle	Puncture Injection Needle（7#）	φ5X330	221-53015
	Puncture Injection Needle（9#）	φ5X330	221-53025
	Puncture Injection Needle（12#）	φ5X330	221-53035
	Puncture Injection Needle（15#）	φ5X330	221-53055
	Puncture Injection Needle（18#）	φ5X330	221-53065
Suction and irrigation	Suction and irrigation	φ5X330	221-53114
	Suction and irrigation	φ5X330	221-53224
	Suction and irrigation	φ10X330	221-03224
Finger Retractor	Three Finger Retractor	φ5X330	221-55923
	Five Finger Retractor	φ10X330	221-05923
ENDO-Retractor	ENDO-Retractor	φ5X360	221-53013
	ENDO-Retractor	φ5X360	221-53023
Myoma Drill	Myoma Drill	φ5X330	221-53109
	Myoma Drill	φ5X420	221-54109
	Myoma Drill	φ10X330	221-03109
	Myoma Drill	φ10X420	221-04109
Veress Needle	Veress Needle	φ2X120	221-21127
	Veress Needle	φ2.7X150	221-27157
Knot Pusher	Knot Pusher	φ4X330	221-43019
	Knot Pusher	φ4X330	221-43029
Sealing Cap	Sealing Cap	φ5	221-50925
	Sealing Cap	φ10	221-00925
	Sealing Cap	φ12	221-80925

2. Intend Use

For Suction and Irrigation Tube Set: It is used in the laparoscopic surgery to rinse the tissues, organs and suck away waste liquid.
For Trocar: It is used in clinical laparoscopic surgery in the hospital to establish access to the abdominal cavity for the instrument.
For Veress Needle: It is intended to establish pneumoperitoneum piror to trocar and cannula insertion in laparoscopic procedures by insufflations with carbon dioxide through percutaneous insertion.
For Needle Holder: It is intended to used to place sutures in endocopic surgery using suture material suitable for size of the needle holder.
For Endo Applier for Clips: Endoscopic for ligating and marking verssels and tubular structures whenever titanium clips are used/indicated.
For Puncture Injection Needle: Reusable surgically invasive device for temporary use. It is inserted via a trocar sleeve.

For Suture Fascia Fix Forceps: It is intended to used to close the incision in the abdominal wall during surgery.
For ENDO-Retractor: ENDO-Retractors are designed to support and retract the liver during laparoscopic upper abdominal surgery.
For Finger Retractor : It is intended to used to detach the organs and expose the surgical field during surgery.
For Knot Pusher: It is intended to used to push and tighten the knot during surgery.
For Myoma Drill: It is intended to used to fix and pull uterine fibroids during surgery.

3. Component Specification

For detailed component model and specification, please refer to the component label on the product component package.

WARNING

- Please read this instruction manual carefully before using the product;
- Any violation or deviation from the manual could cause harm to the patient;
- The instrument should only be used by licensed physicians and medical professionals trained to operate it.
- The instrument must not be under pressure, overlapped, impacted, or bumped, so as to prevent deformation and damage.
- Before each use, the instrument inserted into the human body must be checked for rough surfaces, sharp edges or protrusions that could cause injury.

CAUTION

- The product has limited pressure bearing capacity and excessive application of force can result in breakage or impaired functionality of the device and endanger the patient.

NOTE

- After one year of use of the instrument, it is suggested that the instrument have a comprehensive inspection and maintenance by the manufacturer. If the instrument is found aged to the extent that it cannot be used, necessary measures can be taken to repair it, or just scrap it, so as to prevent the instrument from malfunctioning during the operation and endangering the patient.
- After the instrument is scrapped, it should be disposed of according to the disposal method for hospital medical waste to avoid pollution to the environment.
- The part of the needle holder that will be in contact with the patient is made of metal, and its surface material is consistent with the internal material.

4. Instructions for Use

- Make sure the product has been cleaned and sterilized prior to the first use and after every subsequent use.

- Inspect the instrument for overall condition and physical integrity. Do not use the instrument if any damage is noted.

5. Schematic Diagram

- **Needle holder**

Note: There are many types of needle holder, which can be distinguished by the tip and handle

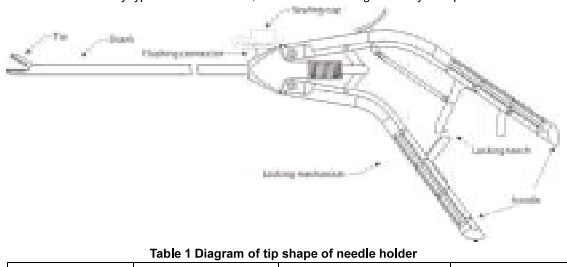
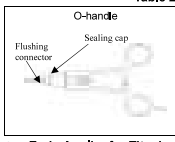
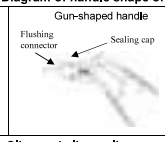
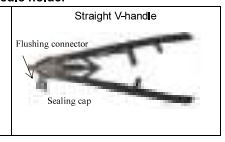


Table 1 Diagram of tip shape of needle holder

Straight	Left-curved	Right-curved	Reset style
			

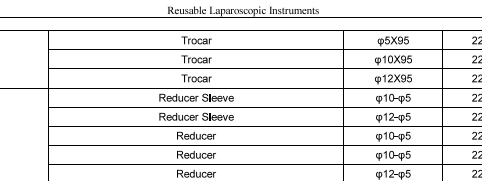
Table 2 Diagram of handle shape of needle holder

O-handle	Gun-shaped handle	Straight V-handle
		

- **Endo Applier for Titanium Clips and clip applier**

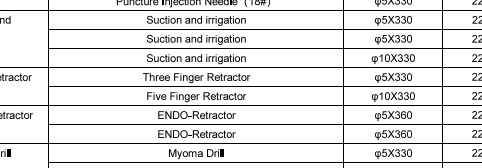
Note: The Endo Applier for Titanium Clips and clip applier can be distinguished by the tip and handle

Table 3 Diagram of Endo applier for titanium clips



1.Jaws	2.Working insert	3.Sheath tube
4.LUER-Lock port for irrigation	5. Cap for irrigation port	6. Wheel for turning the jaws
7.Handle		

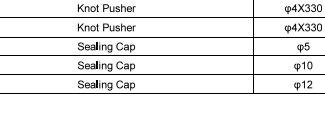
Table 4 Diagram of Clip applier



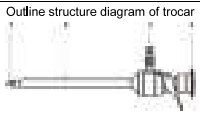
1.Jaws	4.LUER-Lock port for irrigation	7.Handle
2.Working insert	5. Cap for irrigation port	
3.Sheath tube	6. Wheel for turning the jaws	

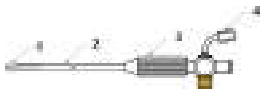
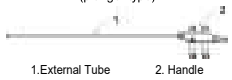
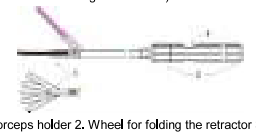
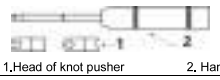
Table 5 Schematic diagram of other instruments

Schematic diagram of ENDO-Retractor



1.Retractor 2. Working insert 3. Handle 4. Wheel for bending the retractor

Outline structure diagram of trocar	Outline structure diagram of Puncture Injection Needlestop
	
1.Trocar head 2. Casing tube 3.Gas injection valve 4.Needle file	1. Needle 2. LL connection

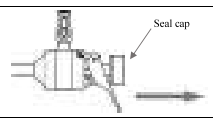
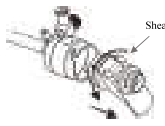
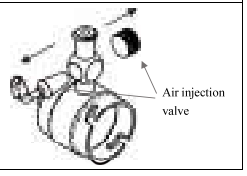
Outline structure diagram of Myoma Drill  1. Drill 2. Handle	Outline structure diagram of Suture Fascia Fix Forceps  1.Forceps holder 2. Working insert 3. Handle
Outline structure diagram of veress needle  1.Inner tube 2. Outer tube 3. Handle 4. Gas injection valve	Outline structure diagram of seals 
Outline structure diagram of Suction and irrigation (plunger type)  1.External Tube 2. Handle	Outline structure diagram of Suction and irrigation (valve handle type)  1.External Tube 2. Valve
Outline structure diagram of Finger Retractor (five-Finger Retractor)  1. Forceps holder 2. Wheel for folding the retractor 3. Handle	Outline structure diagram of Finger Retractor (three-Finger Retractor)  1. Forceps holder 2. Handle 3. Wheel for folding the retractor
Outline structure diagram of converter 	Outline structure diagram of knot pusher  1.Head of knot pusher 2. Handle

6. Disassembly and Assembly

Before cleaning and sterilization, check and confirm that the instrument is in good condition, and then disassemble the instrument. If some instruments are directly cleaned and sterilized without disassembly, the effect is not good.

6.1 Disassembly and assembly of trocars

6.1.1 Disassembly:

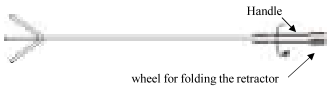
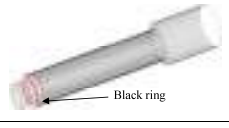
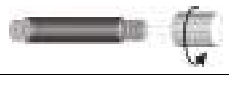
1. Remove the seal cap in the direction shown in the figure	
2. Rotate the sheath cap and take it out in the direction shown in the figure	
3. Remove the air injection valve from the socket in the direction shown in the figure, and the disassembly is completed	

6.1.2 Assembly

The assembly steps of the instrument are the reverse of the disassembly steps.

6.2 Disassembly and Assembly of Three Finger Retractor

6.2.1 Disassembly

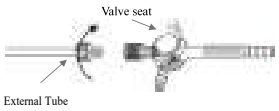
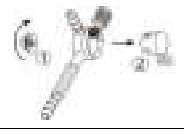
1. Rotate the handle in the direction shown in the figure, When the handle reaches the limit, rotate the wheel for folding the retractor，Rotate the handle again until unscrew the tube and separate it from the handle	
2. Remove the black ring.	
3. Rotate the wheel for folding the retractor until the removing is completed.	

6.2.2 Assembly

The assembly steps of the instrument are the reverse of the disassembly steps.

6.3 Disassembly and Assembly of Suction and irrigation (Valve Handle Type)

6.3.1 Disassembly

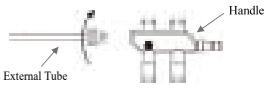
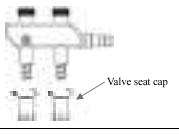
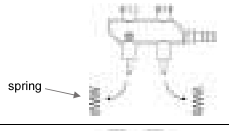
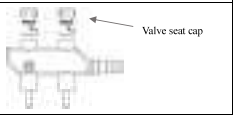
1. Unscrew the External Tube from the valve seat in the direction shown in the figure	
2. Unscrew the part ① and pull out the part ② in the direction shown in the figure, and the disassembly is completed	

6.3.2 Assembly

The assembly steps of the instrument are the reverse of the disassembly steps.

6.4 Disassembly and Assembly of Suction and irrigation (Plunger Type)

6.4.1 Disassembly

1. Unscrew the External Tube from the handle in the direction shown in the figure	
2. Unscrew the valve seat cap of the valve body in the direction shown in the figure	
3. Remove the spring from the valve body in the direction shown in the figure	
4. Unscrew the valve seat cap of the valve body in the direction shown in the figure.	

5. Take out the valve core from the valve body, and the disassembly is completed	

6.4.2 Assembly

The assembly steps of the instrument are the reverse of the disassembly steps.

6.5 Disassembly and Assembly of Other Instruments

Instruments with flushable connectors, such as needle holder, clip applicator, clip applier, ENDO-Retractor, etc., can be cleaned through the flushing channel without disassembly.

The remaining instruments, such as trocar needle, seal, veress needle, converter, knot pusher, fibroids drill, Suture Fascia Fix Forceps, etc., can be cleaned directly

7. Cleaning and Sterilization

Instruments are reusable products and can be cleaned and sterilized as follows. Cleaning and sterilization methods need to be verified by the using unit.

7.1 Cleaning

1) Rinse the product with sufficient running water to remove residues such as blood, mucus and protein, and dry with a lint-free cloth;
2) The detachable parts need to be disassembled for cleaning;
3) Make an enzymatic cleaner solution in warm water (38°C -48°C) according to the manufacturer's instruction;
4) Soak the components in the soft enzymatic cleaner solution for 10 minutes;
5) Rinse the components in warm water and remove scaling and resistant dead cells from all surfaces with the soft enzymatic cleaner and a soft brush;
6) Clean the internal cavity and guide slot with an appropriate brush or cleaning spray gun (10 minutes);
7) Rinse off all detergent residues with pure water;
8) Visually inspect the components to ensure they are completely and thoroughly cleaned. Repeat steps 4) to 7) if residual and visible contamination exists;
9) Drying: wipe dry with clean gauze, and blow dry with clean compressed air for instruments with lumen, and then dry them in the oven at 60℃ for 30 minutes.

7.2 Steam sterilization

Mindray has verified the following parameters:

Sterilization method	Item category	Temperature	Minimum time required	Pressure
Steam sterilization - forevacuum	Instrument	132~134℃	4 Min	205.8 kPa

For the loading method and selection of sterilization procedures for high temperature steam sterilization, please refer to the operation instructions of the corresponding sterilizer. As the selected sterilizer and its operating conditions may affect the final sterilization effect, the sterilization process should be re-confirmed and monitored before sterilization according to relevant international standards (such as ISO 17665), national standards or hospital sterilization management practices for high temperature steam sterilization.

8. Maintenance

The product should be adequately and regularly maintained to avoid accidents and damage caused by aging and wear. The functional security and operational security of the product must be checked and confirmed by experts. The interval for this check depends on the number of uses, and should not be less than once a year.

9. Contraindications

Coagulation dysfunction, pregnancy, cardiopulmonary dysfunction.

10.Storage conditions

Store in controlled environment, which shuould keep away from the sun, rats, fire, insects and caustic gas, as well as with good ventilation.

11.Transportation conditions

Temperature range: -20℃～50℃; relative humidity range: 10%～80%; atmospheric pressure: 500hpa-1060hpa.

12.Operating conditions

Temperature range: 10℃～40℃; relative humidity range: 30%～80%; atmospheric pressure: 700hpa-1060hpa.

13. Production Date: see label.

14. Service Life

Times of reuse: 200 times;

15. Abandonment

The instrument must be disposed of in accordance with local regulations or the hospital's waste disposal regulations when it reaches its expiration date. Please clean and disinfect it before discarding.

16. Symbol Description

Table 6 Symbol Description

Symbol	Meaning
	Prompt the operator to follow the instructions under the symbol, otherwise personal injury may result.
	Prompt the operator to follow the instructions under the symbol, otherwise may cause product failure, damage or affect the test results.
	Prompt the operator to follow the instructions under the symbol, emphasizing the important information from the operation steps or the content that requires the operator's special attention.

Table 7 Description of Symbols Used in Manuals and Labels

 (Blue)	Refer to instruction manual/booklet		Catalogue Number		Humidity limitation
	Atmospheric pressure limitation		Batch No.		Temperature limit
	Avoid rain		Avoid sun exposure		Fragile,handle with care
	Manufacturer		Stacking limit by mass		This way up
	Medical Device		Unique Device Identification		Authorized representative in the European Community
	Labelling for Class I products. Developed and marketed in compliance with medical device directive 93/42/EEC.		mindray		Trademark of manufacture, authorized by Shenzhen Mindray Bio-Medical Electronics Co., Ltd.

mindray

Reusable Electrode Surgical Instruments (ST)

(Scissors, Graspers, Dissectors, Forceps)

Instructions for use

STATEMENT

CE 0197

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EC REP

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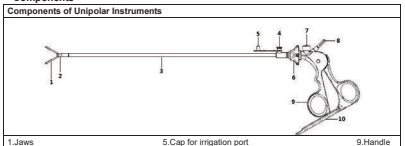
1 General Description

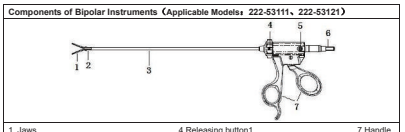
1.1 Components

Components of Unipolar Instruments



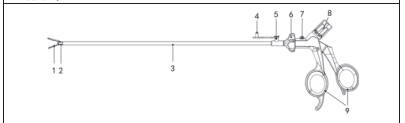
1.Jaws	5.Cap for irrigation port	9.Handle
2.Working insert	6.Wheel for turning the jaws	10.Ratchet
3.Sheath tube	7.Locking button for releasing the working insert	
4.LUER-Lock port for irrigation	8.HF connection	

Components of Bipolar Instruments（Applicable Models：222-53111、222-53121）

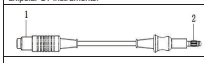
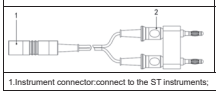
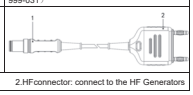


1. Jaws	4.Releasing button1	7.Handle
2. Working insert	5. Releasing button2	
3.Sheath tube	6.HF connection	

Components of Bipolar Instruments(Applicable Models：222-5S3011、222-5S4011、222-5S3021、222-5S4021）



1. Jaws	4. Cap for irrigation port	7. Locking button for releasing the working insert
2. Working insert	5. LUER-Lock port for irrigation	8.HF connection
3. Sheath tube	6. Wheel for turning the jaws	9.Handle

Components of Accessories	
Mono-polar cable, with 4mm plug, length 3.2m, for unipolar ST instruments.	
	
Bipolar cable, with 4mm plug, length 3.0m, for bipolar ST instruments.（Applicable Models：999-016）	**Bipolar cable**, with 4mm plug, length 3.2m, for bipolar ST instruments.（Applicable Models：999-031）
	
1.Instrument connector:connect to the ST instruments;	2.HFconnector: connect to the HF Generators

1.2 Symbol Definitions

Table 1 Symbol definitions

(Blue)	Refer to instruction manual/booklet	LOT	Batch Code		Temperature limit
	Caution	LATEX	Latex-free		Stacking limit by mass
	Type BF applied part		This way up		Keep away from sunlight
	Manufacturer		Fragile,handle with care		Keep Dry
	Atmospheric pressure		Humidity limitation	UDI	Unique Device Identification
REF	Catalogue Number	EC REP	Authorized representative in the European Community		Separate collection for electrical and electronic equipment
CE 0197	The product conforms to the requirements of the EC Directive MDD(93/42/EEC) on medical device	MD	Medical Device	mindray	Trademark of manufacture, authorized by Shenzhen Mindray Bio-Medical Electronics Co., Ltd.

1.3 Definition of Safety Notes

Table 2 Definitions of safety notes

Safety Notes	Meaning
⚠ WARNING	Read the statement below the symbol. The statement alerts you to an operating hazard that can cause personnel injury.
⚠ CAUTION	Read the statement below the symbol. The statement alerts you to possible damage to the device or other property.
NOTE	Read the statement below the symbol. The statement alerts you to information that requires your attention.

1.4 Intended Use

ST instruments are used to dissect and grasp or cut; ST curettes for dissection and preparation of soft tissue.ST instruments with a HF connection can also be used for coagulation of tissue or for the coagulation of minor hemorrhages.It is recommended to check the suitability of the products for the intended procedure prior to use.

1.5 Contraindications

No contraindications relating directly to the product are currently known. Use of ST instruments is contraindicated if, in the opinion of the responsible physician, the use of such an application would endanger the patient, e.g. due to the patient's general condition, or if the endoscopic method as such is contraindicated.

1.6 Specification

1. Working parameter:
   - Φ3.5×200mm, Φ3.5×360mm;
   - Φ5×300mm, Φ5×330mm, Φ5×360mm, Φ5×430mm;
   - Φ10×330mm, Φ10×360mm, Φ10×430mm.
2. Rated voltage: unipolar surgical instrument: 3000Vp; bipolar surgical instrument: 800Vp.

1.7 Safety Instructions

⚠ WARNING

- Failure to observe and follow this instruction for use and the instruction manuals of products used in combination can result in injury to patients, users and third parties as well as damage to the product. Please read all relevant instructions carefully and always follow the instructions given precisely. Check the functioning of the products used in combination.
- There is a risk of injury if the insulation on HF generators is damaged or missing or if there is unintentional contact between the applied part and the patient. Do not use HF Generators with damaged or missing insulation and make sure that the applied parts do not come into contact with conductive instruments, accessories and liquids. Never place the applied parts on the patient.
- Incorrectly assembled and damaged instruments can lead to injury to the patient. Instruments and all of the accessories used in combination with them must be checked immediately before and after every use to ensure that they are complete, free from damage, and in full working order and have no unintentional rough surfaces, sharp corners, burred edges or projecting parts. Care must be taken not to leave missing or broken-off components inside the patient.
- Overloading the instrument by exerting too much force may cause the medical device to break, bend, and malfunction, and consequently injure the patient or user. Do not overload the instruments back to their original positions.

- Incorrectly application of medical instruments poses a risk of injury for patients. Users of medical instruments must have an appropriate medical qualification and be acquainted with the application.
- During operation, the electrode jaw may be hot about 40°C-100°C.Maybe burn the patient.
- After coagulating, be sure to keep the jaw far away from patient to prevent high temperature harm.
- If the applied parts are used outside the field of vision there is a risk that tissue and accessories could be damaged unintentionally. Always hold the applied parts of the active electrode, laser and other instruments which transmit energy in a target-oriented manner in the field of vision during application.
- These instruments are not sterile when delivered. The use of non-sterile instruments poses a risk of infection for patient, users and third parties. Inspect instruments for visible contamination. Visible contamination is an indication that reprocessing has not been carried out or has been carried out incorrectly. Reprocess the instruments before initial use and before and after every subsequent use using validated procedures.
- ST instruments cannot be used in conjunction with oxygen rich environments. Sparks may be produced when HF generators and accessories are used, which can cause combustible or flammable liquids to ignite or explode. Make sure that combustible or flammable agents have evaporated before using HF generators and that no flammable gases are present.
- Use ST instruments only with HF generators that comply with IEC 60601-1, IEC 60601-1-2,IEC 60601-2 standards.

⚠ CAUTION

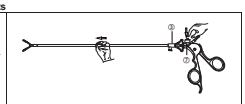
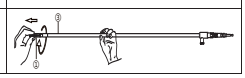
- ST instruments with HF connections used in combination with HF units are intended for a recurring peak voltage of max. 3000VP for unipolar instruments, 800Vp for bipolar instruments. Usage with device settings of over required voltage can lead to damage to the instrument (in accordance with IEC60601-2-2,5th edition).

2 Disassembly and Assembly

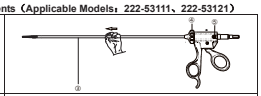
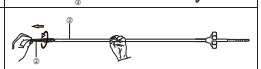
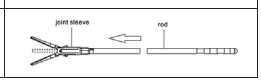
NOTE

- For safety reasons, handles with an HF connection can only be connected to insulated outer sheaths.

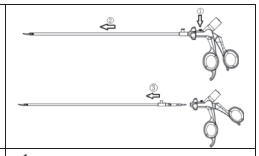
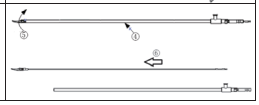
2.1 Disassembly of Unipolar Instruments

1. Open handle completely. If necessary, unlock the locking mechanism on the handle. 2. Press and hold the locking button ⑦ (do not turn). 3. The handle is now opened completely in order to pull the sheath tube ③ out towards the front.	
4. To remove the working insert, hold the jaws ① tightly and rotate the sheath tube ③ 1/4 turn. 5. Pull out the working insert.	

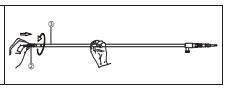
2.2 Disassembly of Bipolar Instruments（Applicable Models：222-53111、222-53121）

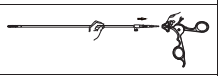
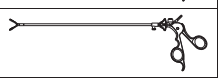
1. Press both release buttons ④and ⑤at the same time and pull the sheath tube ③ out of the handle.	
2. Hold the jaws ①,unscrew the working insert out of the sheath tube ③. 3. Pull out the working insert.	
4. To open the jaws, hold the working insert on the joint sleeve and slide the rod towards the jaws.	

2.3 Disassembly of Bipolar Instruments（Applicable Models：222-5S3011、222-5S4011、222-5S3021、222-5S4021）

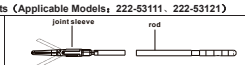
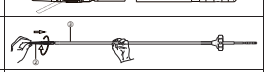
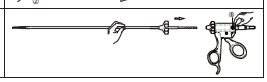
1、 Press the button① with one hand, meanwhile, the other hand dismantles the forceps casing and core② in the direction indicated by the arrow. The first step is finished③.	
2、 Continuing to the first step, seize the forceps casing④ while using the other hand to pinch the end of forceps, rotate as picture shown⑤, and pull it out of the casing. Disassembly is complete⑥.	

2.4 Assembly of Unipolar Instruments

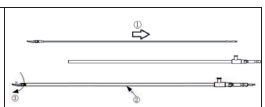
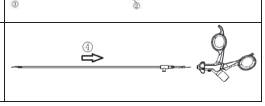
1. Insert the working insert ② from the front into the sheath tube ③. 2. Lock the working insert ② by rotating 1/4 turn in the	

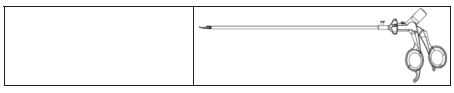
bayonet mount on the sheath tube ③	
3. Insert the sheath with closed jaws into the completely opened handle as far as it will go. .	
4. Lock the sheath by completely closing the handle. 5. Check that the instrument works properly.	

2.5 Assembly of Bipolar Instruments（Applicable Models：222-53111、222-53121）

1. To close the jaws, hold the working insert on the joint sleeve and pull the rod.	
2. Slide the working insert ② into the sheath tube ③. 3. Screw the working insert ② on the joint sleeve as far as it will go.	
4. Press the releasing button ⑤on the handle and slide the sheath tube as far as it will go and latch into the handle.	

2.6 Assembly of Bipolar Instruments（Applicable Models：222-5S3011、222-5S4011、222-5S3021、222-5S4021）

1. Insert the forceps core into its casing① towards the direction of the arrow, rotate the core to the end as indicated③.The assembly of forceps core and its casing is complete.	
2. After that, place the handle upside down (as shown on the right), hold the front of the handle in one hand, insert the forceps core and its casing in the other hand④ until a "click" is heard. The assembly is finished.	



3 General Instruction for Use

1. Make sure the product has been cleaned and sterilized prior to the first use and after every subsequent use.
2. Inspect the instrument for overall condition and physical integrity. Do not use the instrument if any damage is noted.
3. Using a standard endoscopic technique, close the jaw and insert the instrument through an appropriately sized cannula.
4. To rotate the wheel, turn the jaw to desired location.
5. For instruments with ratchet, position tissue inside the jaws and squeeze handle to desired clamping tightness. Different closure degrees have different locking forces. Please operate as noted.
6. Close the jaws before attempting to withdraw instruments through the cannula. Visualize fully to avoid trapping tissue between the jaws of the instrument and causing inadvertent damage. Pull the instrument straight out through the cannula, avoiding lateral pressure that damage the jaw.
7. Use the right cable to connect ST instrument to the HF generator before the procedure. Connect the Instrument connector of cable to the HF connection of ST instrument (see **1.1 components of accessories**). Make sure that mono-polar cables are used for unipolar instruments and bipolar cables are used for bipolar instruments.

4 Reprocessing

⚠ WARNING

- Incorrectly reprocessed medical devices pose patients, users and third parties to a risk of infection as well as the risk that the medical device may malfunction.

⚠ CAUTION

- When preparing and using the solutions, follow the chemical manufacturer's specifications, paying close attention to proper concentration, exposure time and service life. Prolonged immersion and incorrect concentration may result in damage. Bear in mind the microbiological range of action of the chemical used.
- The use of chemical which has not been approved by Mindray may cause damage to the medical devices. Only use chemicals approved for reprocessing.
- National laws and regulations must be observed.

NOTE

- The service life of the products is largely determined by wear, reprocessing methods, the chemicals used and any damage resulting from use.

4.1 Disassembly

Prior to cleaning and disinfection, the medical device must be separated into individual components as much as possible and the jaws of the forceps insert must be opened. (See chapter 2 for details)

4.2 Preparation for Cleaning and Disinfection

Heavy soiling, corrosive solutions and pharmaceuticals must be removed from the medical device immediately after use. To this end, preclean the medical device by wiping down and rinsing, for example. As a general rule, we recommend manual precleaning under cold running water. A preliminary cleaning of coagulation instruments may be necessary before disposal. In order to remove incrustations, we recommend using a surgical pad soaked in 3% hydrogen peroxide.

4.3 Manual Precleaning

4.3.1 Brushing the Surfaces

Heavy soiling must be removed from the surfaces of the individual components by cleaning under cold running water with the aid of a brush or sponge.

4.3.2 Brushing the Lumina

In order to remove all visible contamination, the lumen of the outer sheath must be pre-cleaned under cold running water with the aid of a suitable brush.

4.4 Manual cleaning

The individual components must be completely immersed in a cleaning solution. Through opening the jaws at the forceps insert and filling the lumina in a targeted manner, it must be ensured even surfaces with restricted access are covered and no air bubbles are present. After the necessary exposure time, clean the instrument mechanically with the aid of a brush or sponge. Finally, it must be rinsed with cold running water to ensure neutralization.

4.5 Manual disinfection

The individual components must be completely immersed in a disinfection solution. Through opening the jaws at the forceps insert and filling the lumina in a targeted manner, it must be ensured even surfaces with restricted access are covered and no air bubbles are present. Following the exposure time, the medical devices must be rinsed several times with completely demineralized water or microbiologically pure, sterile water in order to remove all chemical residues. Finally, all surfaces, joints, openings, channels and lumina are dried completely with sterile compressed air.

4.6 Machine Cleaning and Disinfection

4.6.1 Connecting

In order to ensure effective machine cleaning and disinfection, the outer sheath must be connected up to the washer and disinfector via the LUER-connector.

4.6.2 Disinfection

Thermal disinfection is preferred. The relevant national requirements and the A_0 value must be taken into account when using the method.

The selection of a suitable slide-in tray or instrument holder, which should ensure that the medical device is thoroughly rinsed out or though, must take place in consultation with the manufacturer of the device.

NOTE

- If necessary, the instrument must be dried off afterwards by hand.

4.7 Assembly, Inspection and Care

The cleaned and disinfected medical device must be visually inspected for cleanliness, completeness, damage and dryness:

- If residues or contamination are still present, the medical device must be manually cleaned and subjected to a full cleaning and disinfection procedure once more.
- Damaged or corroded medical devices must be withdrawn from use.
- Dismantled medical devices must be assembled.
- Afterwards, a functional check must be carried out.

4.8 Sterilization

We recommend using the moist heat. The sterilization parameter is listed below:

Sterilization Method	Product Category	Temperature	The Minimum Time	Pressure
Moist heat---Gravity Displacement Autoclave	Appliance	121°C	30 Min	102.9 Kpa
Moist heat---Pre Vacuum Process	Appliance	132-134°C	4 Min	205.8 Kpa

5 Directive Compliance

This medical device bears the CE mark in accordance with the Medical Device Directive (MDD) 93/42/EEC.

6 Storage conditions

Store in controlled environment, which should keep away from the sun, rats, fire, insects and caustic gas, as well as with good ventilation.

7 Transportation conditions

Temperature range: -20℃～50℃; relative humidity range: 10%～80%; atmospheric pressure: 500hpa-1060hpa.

8 Operating conditions

Temperature range: 10℃～40℃; relative humidity range: 30%～80%; atmospheric pressure: 700hpa-1060hpa.

9 Disposal

To dispose of ST instruments, no special measures are necessary. National regulations/laws must be observed.

10 Product Model

Product model (T for ratchet instruments and S for non-ratchet instruments)					
Unipolar instruments					
222-5S3123	222-3S1013	222-3T1013	222-5T3123	222-0S3403	222-0T3403
222-5S4123	222-3S3013	222-3T3013	222-5T4123	222-0S4403	222-0T4403
222-0S3133	222-5S2013	222-5T2013	222-0T3133	222-0S3413	222-0T3413
222-3S1212	222-5S3013	222-5T3013	222-3T1212	222-0S3423	222-0T3423
222-5S2213	222-5S4013	222-5T4013	222-5T2213	222-5S2433	222-5T2433
222-5S3213	222-3S1013	222-3T1013	222-5T3213	222-5S3433	222-5T3433
222-5S4213	222-3S1023	222-3T1023	222-5T4213	222-5S4433	222-5T4433
222-5S2223	222-3S3023	222-3T3023	222-5T2223	222-0S3433	222-0T3433
222-5S3223	222-5S2023	222-5T2023	222-5T3223	222-0S4433	222-0T4433
222-5S4223	222-5S3023	222-5T3023	222-5T4223	222-5S2433	222-5T2433
222-3S1233	222-5S4023	222-5T4023	222-3T1233	222-0S3443	222-0T3443
222-3S3233	222-3S1023	222-3T1023	222-3T3233	222-5S2453	222-5T2453
222-5S2233	222-5S2033	222-5T2033	222-5T2233	222-5S3453	222-5T3453
222-5S3233	222-5S3033	222-5T3033	222-5T3233	222-5S4543	222-5T4543
222-5S4233	222-5S4033	222-5T4033	222-5T4233	222-5S2463	222-5T2463
222-3S1233	222-5S2043	222-5T2043	222-3T1233	222-5S3463	222-5T3463
222-0S4243	222-5S3043	222-5T3043	222-0T4243	222-5S4463	222-5T4463
222-5S2253	222-5S4043	222-5T4043	222-5T2253	222-3S1473	222-3T1473
222-5S3253	222-5S2053	222-5T2053	222-5T3253	222-3S3473	222-3T3473
222-5S4253	222-5S3053	222-5T3053	222-5T4253	222-5S2473	222-5T2473
222-5S2263	222-5S4053	222-5T4053	222-5T2263	222-5S3473	222-5T3473
222-5S3263	222-5S2063	222-5T2063	222-5T3263	222-5S4473	222-5T4473

222-5S4263	222-5S3063	222-5T3063	222-5T4263	222-5S2483	222-5T2483
222-5S2273	222-5S4063	222-5T4063	222-5T2273	222-5S3483	222-5T3483
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222-3S3333	222-3S1363	222-3T1363	222-3T3333	222-5T4453	222-3T1553
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222-5S3333	222-5S2363	222-5T2363	222-5T3333	222-3S3553	222-5T2553
222-5S4333	222-5S3363	222-5T3363	222-5T4333	222-5S2553	222-5T3553
222-5T3703	222-5S4363	222-5T4363	222-5S3703	222-5S3553	222-5T4553
222-5T4703	222-5S2373	222-5T2373	222-5S4703	222-5S4553	222-5T2563
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222-5T3943	222-5S2012	222-0S4883	222-5S3943	222-5S3693	222-5T4693

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222-5T4953	222-3S1032	222-5S2022	222-5S4953	222-5S3032	222-3S3062
222-5T3863	222-3S3032	222-5S3022	222-5S3863	222-5S4032	222-5S2062
222-5T4863	222-5S2032	222-5S4022	222-5S4863	222-0S3032	222-5S3062
222-0T3873	222-5S2082	222-0S3022	222-0S3873	222-5S2092	222-5S4062
222-0T4883	222-5S3082	222-5S2072	222-5S2102	222-5S3092	222-5S2112
222-0T4893	222-5S4132	222-5S3072	222-5S3102	222-5S4092	222-5S3112
222-5T2863	222-5S2042	222-5S4072	222-5S4102	222-5S2132	222-5S3092
222-0S3052	222-5S3042	222-5S3122	222-5S3022	222-5S4022	
222-5S4092	222-5S3473	222-5T3473	222-5S4473	222-5T4473	
Mono-polar cable:999-030					
Bipolar instruments					
222-5S4041	222-3S1011	222-3S3041	222-3S1021	222-5S4061	222-3S1031
222-3S1071	222-3S3011	222-5S2041	222-3S3021	222-3S1091	222-3S3031
222-3S3071	222-5S2011	222-5S3041	222-5S2021	222-3S3091	222-5S2031
222-5S2071	222-5S3011	222-5S2081	222-5S3021	222-5S2091	222-5S3031
222-5S3071	222-5S4011	222-5S3081	222-5S4021	222-5S3091	222-5S4031
222-5S4071	222-3S1041	222-5S4081	222-3S1051	222-5S4091	222-3S1061
222-3S3081	222-3S1081	222-5S4051	222-3S3051	222-5S2051	222-3S3061
222-5S3051	222-5S3061	222-5S2061	222-53111	222-53121	
Bipolar cable: 999-016、999-031					
Insert instruments					
222-5Y3012	222-5Y3013	222-0Y3133	222-5Y3333	222-5Y3553	222-0Y4883
222-0Y3423	222-5Y3023	222-5Y3213	222-5Y3393	222-0Y3573	222-5Y3903
222-5Y3363	222-5Y3043	222-5Y3223	222-0Y3403	222-5Y3583	222-5Y3813
222-5Y3633	222-0Y3103	222-5Y3283	222-5Y3453	222-5Y3773	222-5Y3493
222-0Y3413	222-5Y3123	222-5Y3303	222-5Y3022	222-5Y4022	222-5Y3092
222-5Y4092	222-5Y3473	222-5Y4473	222-5Y4543	222-5Y3011	222-5Y4011
222-5Y3021	222-5Y4021	222-5Y4013	222-5Y4023	222-5Y4123	222-5Y4633
222-5Y4012					
Handle Instruments					
222-550	222-551	222-560			
Insulated Shaft					
222-5Y301	222-0Y301	222-5Y401	222-5Y303	222-5Y403	

mindray

Reusable Electrode Surgical Instruments

(Coagulation Electrode)

Instructions for Use

222-51110 222-52120 222-50150 222-51220 222-52230 222-50250 222-51440 222-52540
222-52550 222-51610 999-015 999-030

STATEMENT

For this operator's manual, the issued date is 2023-07 (version: 1.0)

CE 0197

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EC REP

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Address: Eiffestrasse 80, 20537 Hamburg, Germany
Tel: 0049-40-2513175/2513174

Intended Use

This device is intended to be used in laparoscopic operation. Probe to cauterize soft tissue, organ during the surgical procedures. The coagulation electrodes with suction can also aspirate the fluids from the abdomen.
Reusable monopolar cord is designed to connect an electrosurgical device, such as monopolar forceps to a compatible electrosurgical generator.

Contraindications for Use

The instrument is not intended for use when endoscopic techniques are contraindicated.

Description

1. **Working parameter**: ϕ5×330mm，ϕ5×450mm;
2. **Specification of connector**: ϕ4×18.6mm
3. **Rated voltage** of mono-polar surgical instrument: 3000V.

The instrument is shipped non-sterile. To prevent infection, this instrument must be cleaned and sterilized by the user prior to use.

⚠ WARNING

- During high frequency operation if operated improperly may cause unintended damage of tissue, gas embolism, low frequency leakage, influence other electronic equipment, etc. Follow all instructions for use required by the generator manufacturer. Consult medical literature or country specific regulations for specific techniques, complications and hazards prior to procedure.
- Verify the compatibility of parts from different manufacturers prior to conducting the procedure. And make sure the repeat peak voltage not exceed the rated voltage of the instrument.
- Ensure device grasping or cutting surfaces are fully visible prior to engaging the electrical current to avoid unwanted damage. Keep the working-end under full and unobstructed visualization during use.
- The instrument should be used cooperated with endoscope and the accessories in the laparoscopic operation.
- Endoscopic surgery should be performed only by physicians who are thoroughly trained in endoscopic techniques and failure modes, precautions and corrective actions in the event of failure.
- Connect bipolar accessories to the bipolar receptacle only and monopolar accessories to the monopolar receptacle only. Do not attempt to connect or interchange bipolar and monopolar accessories and receptacle connections. Improper connection of accessories may result in inadvertent accessory activation or other potentially hazardous conditions.
- The material of tip includes ceramics which is fragile. Do not knock or crash the tip in the operation and maintenance process.
- Do not use a damaged or faulty instrument. Check the instrument for bent, broken, cracked, worn, or separated parts prior to use.

⚠ CAUTION

- Do not use excessive force or in a manner not consistent with normal instrumentation use.
- The head of the monopolar electrocoagulation device contains fragile ceramic materials which should be gently handled during use and movement;

- During the operation, avoid the head of the monopolar electrocoagulation device from being flushing;

General Instruction for Use

1. Make sure the product has been cleaned and sterilized prior to the first use and after every subsequent use.
2. Inspect the instrument for overall condition and physical integrity. Do not use the instrument if any damage is noted.
3. Attach the monopolar cord to the connector end of the instrument.
4. Conduct the procedure using a standard endoscopic technique.

Clean, Sterilization and Disinfection

- Clean: We recommend using the ultrasonic cleaning method to clean.
- Disinfection: It is recommended to be disinfected by 2% alkaline glutaraldehyde. Please follow the instruction of disinfectant manufacturer.
- Sterilization: We recommend using the moist heat. the sterilization parameter listed below:

Sterilization Method	Product Category	Temperature	The Minimum Time	Pressure
Moist heat---Gravity Displacement Autoclave	Appliance	121℃	30 Min	102.9 Kpa
Moist heat---Pre Vacuum Process	Appliance	132~134℃	4 Min	205.8 Kpa

Storage conditions

- The instrument should be stored in controlled environment, protected from light, fire, rat and the insects. Keep the environment clean, well ventilated and without corrosive gases

Transportation conditions

- Temperature range: -20℃～50℃; relative humidity range: 10%～80%; atmospheric pressure: 500hpa-1060hpa.

Symbol Description

Table 1 Symbol Definitions

	Type BF applied part	LOT	Batch Code		Manufacturer
	Latex-free		Caution	REF	Catalogue Number
(Blue)	Refer to instruction manual/booklet		Humidity limitation		Keep Dry
	Keep away from sunlight		Fragile,handle with care	50KG	Stacking limit by mass
	Atmospheric pressure limitation		This way up		Temperature Limit
	Separate collection for electrical and electronic equipment	UDI	Unique Device Identification	MD	Medical Device
CE 0197	The product conforms to the requirements of the EC Directive MDD(93/42/EEC) on medical device	EC REP	Authorized representative in the European Community	mindray	Trademark of manufacture, authorized by Shenzhen Mindray Bio-Medical Electronics Co., Ltd.

Table 2 Definitions of Safety Notes

Safety Notes	Meaning
⚠ WARNING	Read the statement below the symbol. The statement alerts you to an operating hazard that can cause personnel injury.
⚠ CAUTION	Read the statement below the symbol. The statement alerts you to possible damage to the device or other property.