Aesculap®

Aesculap Neurosurgery

Instructions for use/Technical description
Irrigation device AM390

BRAUN
SHARING EXPERTISE
Aesculap®
Irrigation device GN090

Front panel legend
1. Button for setting the drip frequency
2. Bargraph: "Drip frequency"
3. Button for setting the drip volume
4. Bargraph: "Drip volume"
5. Button for opening the hose clamp device
6. LED indicators: "Open hose clamp device"
7. JET foot switch socket
8. LED indicators: "JET foot switch actuated"
9. Hose clamp device
10. LED indicators: "HF foot switch actuated"
11. LED indicators: "HF device activated"
12. HF device foot switch socket
13. Socket for connection cable between the GN090 and the HF device
14. LED indicators: "Drip release combined with the "CUT" operating mode"
15. LED indicators: "Drip release combined with the "COAG" operating mode"
16. Button for combining the drip release with the "CUT"/"COAG" operating modes
17. Bargraph: "Follow-up time"
18. Button for setting the follow-up time
19. LED indicators: "Drip release during HF"
20. Button for switching drip release on/off during HF
21. Bargraph: "Lead-time"
22. Button for setting the lead time
23. LED indicators: "Device on" (device ready for operation)
24. Button: "Device on/off"
25. LED indicators: "Device prepared for turning on"

Symbols on product and packages

- Symbols: Caution
- Follow instructions for use (small white man on a blue background)
- Marking of electric and electronic devices according to directive 2002/96/EC (WEEE), see Disposal
- Hose clamp device opened
- JET pedal switch actuated
- HF pedal switch actuated
- HF activated
- Fuse
- Equipotentialization
- Alternating current
- Non-Ionizing radiation
- Manufacturer's batch designation
- Manufacturer's serial number
- Manufacturer's article number
- Date of manufacture

Back panel legend
26. Label
27. Power input combination element with double fuse holder and mains voltage selection bit
28. Potential equalization connector
1. Safe handling

CAUTION
Federal law restricts this device to sale by, or on order of a physician!

Note
These instructions for use only describe the setup, function and operation of the GN090 irrigation device and is not suitable for initiating a newcomer to high-frequency surgery. A general description of the application of high-frequency electrosurgery can be found in the respective O.R. manuals and other relevant literature.

⚠️ DANGER
Risk of death by electric shock!
- Do not open the product.
- Connect the product only to a grounded power supply.

⚠️ DANGER
Risk of injury to patients due to inappropriate application!
- The product and accessories should only be operated by qualified or trained and experienced personnel.
- Transport the product only in its original box.
- Prior to use, check that the product is in good working order.
- Observe “Notes on Electromagnetic Compatibility (EMC)”, see TA022130.
- To prevent damage caused by improper setup or operation, and in order not to compromise warranty and manufacturer liability:
  - Use the product only according to these instructions for use.
  - Follow the safety and maintenance instructions.
  - Only combine Aesculap products with each other.
  - Adhere to application instructions according to relevant norms.
- Inspect the accessories regularly: Electrode cables and endoscopic accessories, in particular, must be checked for possible damage to the insulation.
Aesculap®
Irrigation device GN090

1. Instructions
- Ensure that the device does not come in direct contact with the patient or in the sterile area respectively.
- Ensure that the user does not come into direct contact with the patient and HF device at the same time.
- Keep the instructions for use accessible for the user.
- Always adhere to applicable standards.

2. Product description

2.1 Scope of supply

<table>
<thead>
<tr>
<th>Designation</th>
<th>Art. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation device</td>
<td>GN090</td>
</tr>
<tr>
<td>GN090 HF device connection cable</td>
<td>GN090830</td>
</tr>
<tr>
<td>Bottle holder</td>
<td>GD412804</td>
</tr>
<tr>
<td>GN090 irrigation device instructions for use</td>
<td>TA021676</td>
</tr>
<tr>
<td>Notes on electromagnetic compatibility (EMC)</td>
<td>TA022130</td>
</tr>
</tbody>
</table>

2.2 Components required for operation

Instruments with an incorporated flushing canal as well as an Aesculap pedal switch and an Aesculap HF device are required for operating the GN090 irrigation device.

The following combinations of Aesculap foot switches and Aesculap HF devices are possible:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Foot control switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN090, GN190</td>
<td>GK226, GN161</td>
</tr>
<tr>
<td>GN300, GN340</td>
<td>GN224, GN225, GK226, GN161</td>
</tr>
</tbody>
</table>

The instrument tips can be flushed with the optional JET foot switch GN092.

2.3 Intended use

The GN090 irrigation device is used to control the supply of liquid to the tip of a HF cutting or coagulation instrument.

2.4 Operating principle

When using the instruments without supplying irrigation fluid, the transition resistance between the instrument and the tissue may fluctuate greatly. To achieve consistently good results, the GN090 irrigation device supplies defined doses of sterile fluid to the instrument tip and thereby reduces the transition resistance to a defined level.

Moistening of the application reduces the degree of deposits and results in less "sticking" at the instrument tip.

The fine instrument tips are also cooled by the liquid. This increases the durability of the instrument. The application site and the instrument can also be flushed using the JET function.

3. Preparation and setup

Non-compliance with the following instructions will preclude all responsibility and liability in this respect on the part of Aesculap.

- When setting up and operating the product, adhere to:
  - national regulations for installation and operation,
  - national regulations on fire and explosion protection.

Note

For the safety of patients and users it is essential that the mains power cord and, especially, the protective earth connection are intact. In many cases defective or missing protective earth connections are not registered immediately.

- Connect the device via the potential equalization terminal at the rear panel of the device to the potential equalization system of the room used for medical purposes.

Note

The potential equalization lead can be ordered from the manufacturer as art. no. GK535 (4 m length) or TA008205 (0.8 m length).

3.1 First use

![WARNING]
Risk of injury and/or product malfunction due to incorrect operation of the electromedical system!
- Adhere to the instructions for use of any medical device.
3.2 Stacking of units

The GN090 JET irrigation device can be installed and fixed on an HF device using the integrated stacking device.

- Make certain the system is set up on a sufficiently stable support (e.g., a table, ceiling support, equipment cart, etc.).

*Note*

The GN090 irrigation device must be located at the highest position on the stack of devices due to the holding arm for the sterile liquid bottle.

Stacking products fitted with stacking devices:

![Stacking products](image)

Fig. 1 Stacking of units

Legend

- **A** Accessory device, e.g. JET irrigation device GN090
- **B** Locking screw
- **C** Stacking cone

- Do not exceed a stack height of 475 mm.
- Remove the caps from stacking cones C.
- Unscrew the feet of the product that will be on top.
- Adjust the stacking cones to the correct mounting position by turning the locking screw B counterclockwise as far as it will go, using a screwdriver.
- Place the upper device on the one below it.
- Securing the device: Turn locking screw B clockwise to the positive stop.
- Slightly lift the units to check that they are safely connected to each other.
- Place the units in a stable position.

3.3 Moving stacks of units

- Always lift stacks from underneath the bottommost unit.

3.4 Dismantling stacks of devices

Dismounting a stack of products fitted with stacking devices:

![Dismantling stacks](image)

Fig. 2 Dismantling stacks of devices

Legend

- **B** Locking screw

- Apply a screwdriver on locking screw B and turn it counterclockwise to the positive stop.
- Remove the topmost device.
- Screw back on the feet of the device, either by hand or using a screwdriver.

3.5 Presetting the correct voltage

The mains voltage must correspond to the voltage indicated on the type plate at the back of the unit.

The correct voltage for the control unit is indicated in the window located at the back of the device. The standard voltage for the unit in Europe is 230 V.

⚠️ **Danger**

- Unplug the device before changing the fuses!

- If the indicated voltage does not correspond to the actual mains voltage, change the setting at the rear panel of the power unit:
  - Release clip B using a suitable screwdriver A and remove the fuse holder 32.
  - Pull out the voltage selection element 31 under the fuse holder.
  - Reinsert the voltage switching element so that the desired voltage C is legible.
  - Reinsert the fuse holder 32.
Irrigation device GN090

4. Working with the GN090 irrigation device

4.1 System set-up

4.1.1 Connecting the accessories

DANGER
Risk of injury due to unapproved configuration using additional components!

- For all applied components, ensure that their classification matches that of the application component (e.g. Type BF or Type CF) of the respective device.

Combinations of accessories that are not mentioned in the present instructions for use may only be employed if they are specifically intended for the respective application, and if they do not compromise the performance and safety characteristics of the products.

Also note that any equipment connected at the interfaces must demonstrably meet the respective IEC standards (e.g. IEC 60601-1 for electomedical devices).

All configurations must comply with basic standard IEC/DIN EN 60601-1. Any individual connecting devices with one another is responsible for such configuration and must ensure compliance with basic standard IEC/DIN EN 60601-1 or applicable national standards.

- Please address your B. Braun/Aesculap partner or Aesculap Technical Service with any inquiries in this respect; for a contact address, see Technical Service.

4.1.2 Connecting the power supply

DANGER
Risk of death by electric shock!

- Connect the product only to a grounded power supply.
- Set up the device in such a way that a separation from the network cable is easily possible.

Note
Before operating the device, make certain that the supply voltage marked on the plug of the device matches that of the supply voltage being used. To change the setting, see Presetting the correct voltage.

The GN090 irrigation device must only be operated with an alternating current from 50 Hz to 60 Hz. The mains voltage must be between 100 V and 120 V or between 220 V and 240 V. The voltage is preset on the mains voltage connector on the rear side of the device. Insert the power cord only in a properly mounted schuko power socket (for this see VDE 0107).
4.2 Function checks

- Always carry out function checks before using the product.
- Make certain that the accessories used for the function tests do not show any visual damage.
- Prepare and set up the unit, see Preparation and setup.
- Prepare the device, see System set-up.
- Check the functionality of the following elements, one after the other, in the following sequence:

<table>
<thead>
<tr>
<th>User action</th>
<th>Device action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate the “Device on/off” button 24.</td>
<td>The “device on” LED display lights up</td>
</tr>
<tr>
<td>Repeatedly press the button for setting the drip frequency 1</td>
<td>One to five light fields light up, one after the other, in the “drip frequency” bar graph 2</td>
</tr>
<tr>
<td>Repeatedly press the button for setting the drip volume 3</td>
<td>One to five light fields light up, one after the other, in the “drip volume” bar graph 4</td>
</tr>
<tr>
<td>Repeatedly press the button for setting the lead time 22</td>
<td>Zero to six light fields light up, one after the other, in the “lead time” bar graph 21</td>
</tr>
<tr>
<td>Repeatedly press the button for setting the follow-up time 18</td>
<td>Zero to six light fields light up, one after the other, in the “follow-up time” bar graph 17</td>
</tr>
<tr>
<td>Activate and release the JET foot switch</td>
<td>When activating the JET foot switch, the LED display 8 lights up and the tappet in the hose clamp device opens</td>
</tr>
<tr>
<td></td>
<td>Releasing the JET foot switch closes the tappet with a clearly audible “click”</td>
</tr>
<tr>
<td>“Activate the CUT” or “COAG” function using the connected foot switch</td>
<td>The “HF foot switch activated” LED display lights up After the expiry of the lead time, the HF device is activated and the “HF device activated” LED display 10 lights up</td>
</tr>
</tbody>
</table>

Fig. 4 Complete system configuration

Legend

34 Sterile liquid bottle
35 HF device
4.3 Safe operation

**WARNING**

Risk of injury and/or malfunction!

- Always carry out a function check prior to using the product.

4.3.1 Factory settings

The following settings are preset when the GN090 irrigation device is delivered:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drip frequency</td>
<td>Level 3</td>
</tr>
<tr>
<td>Drip volume</td>
<td>Level 3</td>
</tr>
<tr>
<td>Lead time</td>
<td>Level 3</td>
</tr>
<tr>
<td>Follow-up time</td>
<td>Level 3</td>
</tr>
<tr>
<td>Drip release during HF</td>
<td>switched on</td>
</tr>
<tr>
<td>Combining the drip release with the “CUT”/“COAG” operating modes</td>
<td>combined with “COAG”</td>
</tr>
</tbody>
</table>

4.3.2 Switching on the device

In order to be able to switch on the irrigation device it must be connected to the mains voltage. The green LED 25 lights up.

- Activate the “Device on/off” button 24 in order to switch on the irrigation device.
  - The “Device on” 23 LED display lights up.

4.3.3 Insert tube set

**Note**

The tube set is intended for single use.

- When inserting the tube set, ensure that sterile conditions are observed.
- Activate the button for opening the hose clamp device 5.
  - The hose clamp device 9 opens and the “Hose clamp device open” LED display 6 lights up.
- Insert the silicone tube of the tube set into the hose clamp device.
  - The hose clamp device closes automatically after approximately 10 seconds. The “Hose clamp device open” LED display 6 starts to blink shortly before the expiry of ten seconds.
- Inflate the pressure cuff to 150 mmHg up to a maximum of 300 mmHg using the pair of bellows.

**Note**

The amount of liquid delivered correlates directly with the pressure of the pressure cuff. If the amount of liquid delivered is too low or too high, the pressure can be slightly increased or reduced.

**Note**

If a very large amount of liquid is taken out of the sterile liquid bottle, the air must be pumped into the pressure cuff afterwards in some cases in order to recreate the nominal pressure.

4.3.4 Set the drip frequency

The drip frequency, i.e., the number of drips per unit of time, can be set in five steps. The set value is displayed via the “Drip frequency” 2 bargraph. The more light fields of the bar are lit up, the higher the selected drip frequency.

**Note**

A drip frequency of zero cannot be set. The drip release can however be partly or entirely switched off using the button for combining the drip release with the “CUT” and “COAG” operating modes 16, see Combining drip release with the “CUT”/“COAG” operating modes.

- Activate the button for setting the drip frequency 1 as often as is necessary so that the desired number of light fields is displayed in the “Drip frequency” bargraph 2.

4.3.5 Set the drip volume

The drip volume, i.e., the amount of liquid that is let through for each opening of the tappet, can be set in five steps. The set value is displayed via the “Drip volume” 4 bargraph. The more light fields of the bar are lit up, the greater the selected drip volume.

**Note**

A drip volume of zero cannot be set. The drip release can however be partly or entirely switched off using the button for combining the drip release with the “CUT” and “COAG” operating modes 16, see Combining drip release with the “CUT”/“COAG” operating modes.

- Activate the button for setting the drip volume 3 as often as is necessary so that the desired number of light fields is displayed in the “Drip volume” bargraph 4.

4.3.6 Set the lead time

The lead time, i.e., the time between the activation of the “CUT” or “COAG” pedal and the HF activation can be set in six steps between 0 s and 1.5 s. The set value is displayed via the “Lead time” 21 bargraph. The more light fields of the bar are lit up, the longer the selected lead time.

- Activate the button for setting the lead time 22 as often as is necessary so that the desired number of light fields is displayed in the “Lead time” bargraph 21.
4.3.7 Switching the drip release on/off during HF

The "Drip release during HF" LED display 19 shows the status of the drip release during HF activation:
- The LED indicators light up: Drip release during HF is activated
- The LED indicators are not lit up: Drip release during HF is deactivated

 Activate button for switching drip release on/off during HF 20.

4.3.8 Set follow-up time

The follow-up time, i.e. the time between the release of the "CUT" or "COAG" pedal, in which drips are still released, can be set in six steps between 0 s and 1.5 s. The set value is displayed via the "Follow-up time" 17 bargraph. The more light fields of the bar are lit up, the longer the selected follow-up time.

 Activate the button for setting the follow-up time 18 as often as is necessary so that the desired number of light fields is displayed in the "Follow-up time" bargraph 17.

4.3.9 Combining drip release with the "CUT"/"COAG" operating modes

Drip release can be combined with the "CUT" or "COAG" operating modes, or with both. The 14 ("CUT") and 15 ("COAG") LED indicators show which operating mode the drip function is combined with.

 Repeatedly press the button for combining drip release with the "CUT"/"COAG" operating modes 16 until the desired combination is displayed in the LED displays 14 ("CUT") and 15 ("COAG").

4.3.10 Activate the JET function

If the JET foot switch is activated, the hose clamp device is opened for the duration of the activation, and liquid is therefore supplied to the instrument tip with full pressure.

Note
If the JET function is activated for longer than 10 s, the clamp device closes automatically. This should prevent the entire contents of the bottle being emptied in the event that the JET foot switch is activated unintentionally. The JET foot switch must then be released again in order to perform activation again.

Note
If the foot switch is released again before the expiry of the lead time, high-frequency is not activated and no follow-up time is started.

Note
If the foot switch "CUT" or "COAG" is activated for too long a period, a permanent activation error may be triggered, depending on the HF device used. For this, see the instructions for use for the HF device used.

4.3.11 Activate device

If the "CUT" or "COAG" foot switches are activated, the lead time starts initially and the LED display "HF foot switch activated" 10 lights up. During the lead time, drips are released in the set drip frequency and volume. After the expiry of the lead time, the HF release is activated and the "HF device activated" LED display 11 lights up. If drip release is activated during HF, drips continue to be released and the "Drip release during HF" LED display 19 lights up. The HF activation ends with the release of the foot switch and the set follow-up time is started. During the follow-up time, drips are again released in the set drip frequency and volume.

It is possible to set the JET function at any time.

4.3.12 Storing the settings

The set values are stored if the device is switched off with the "Device on/off" button 24. When the device is switched back on, the most recently set values are preselected again.

Note
If the device is switched off by disconnecting the mains voltage, the set values are not stored and the values set when the device was most recently switched off using the "Device on/off" button 24 are set instead when the device is next switched on.

4.3.13 Taking the irrigation device out of service

 Activate the "Device on/off" button 24 in order to switch off the irrigation device.

 The "Device on" LED display 23 stops being illuminated.
 LED 25 lights up, and the irrigation device is still ready for switching on.

 Withdraw mains cable.
 The irrigation device is completely disconnected from the power supply.
5. Validated reprocessing procedure

5.1 General safety instructions

Note
Adhere to national statutory regulations, national and international standards and directives, and local, clinical hygiene instructions for sterile processing.

Note
For patients with Creutzfeldt-Jakob disease (CJD), suspected CJD or possible variants of CJD, observe the relevant national regulations concerning the reprocessing of products.

Note
Mechanical reprocessing should be favored over manual cleaning as it gives better and more reliable results.

Note
Successful processing of this medical device can only be ensured if the processing method is first validated. The operator/sterile processing technician is responsible for this.
The recommended chemistry was used for validation.

Note
If there is no final sterilization, then a virucidal disinfectant must be used.

Note
For the latest information on reprocessing and material compatibility see also the Aesculap extranet at www.extranet.bbraun.com
The validated steam sterilization procedure was carried out in the Aesculap sterile container system.

5.2 General information

Dried or affixed surgical residues can make cleaning more difficult or ineffective and lead to corrosion. Therefore the time interval between application and processing should not exceed 6 h; also, neither fixating pre-cleaning temperatures ≥45 °C nor fixating disinfecting agents (active ingredient: aldehydes/alcohols) should be used.

Excessive measures of neutralizing agents or basic cleaners may result in a chemical attack and/or to fading and the laser marking becoming unreadable visually or by machine for stainless steel.

Residues containing chlorine or chlorides e.g. in surgical residues, medicines, saline solutions and in the service water used for cleaning, disinfection and sterilization will cause corrosion damage (pitting, stress corrosion) and result in the destruction of stainless steel products. These must be removed by rinsing thoroughly with demineralized water and then drying.

Additional drying, if necessary.

Only process chemicals that have been tested and approved (e.g. VAH or FDA approval or CE mark) and which are compatible with the product’s materials according to the chemical manufacturers’ recommendations may be used for processing the product. All the chemical manufacture’s application specifications must be strictly observed. Failure to do so can result in the following problems:

- Optical changes of materials, e.g. fading or discoloration of titanium or aluminum. For aluminum, the application/process solution only needs to be of pH >8 to cause visible surface changes.
- Material damage such as corrosion, cracks, fracturing, premature aging or swelling.
  ▶ Do not use metal cleaning brushes or other abrasives that would damage the product surfaces and could cause corrosion.
  ▶ Further detailed advice on hygienically safe and material-/value-preserving reprocessing can be found at www.a-k-l.org, link to Publications, Red Brochure - Proper maintenance of instruments.

5.3 Preparations at the place of use

- Remove any visible surgical residues to the extent possible with a damp, lint-free cloth.
- Transport the dry product in a sealed waste container for cleaning and disinfection within 6 hours.

5.4 Preparation before cleaning

- Keep the product separate from the power supply.
- Remove accessories.
5.5 Cleaning/disinfection

5.5.1 Product-specific safety instructions for the reprocessing procedure

⚠️ DANGER
Risk of electric shock and fire hazard!
- Unplug the device before cleaning.
- Do not use flammable or explosive cleaning or disinfecting solutions.
- Ensure that no fluids will penetrate the product.

⚠️ CAUTION
Damage to, or destruction of the product caused by mechanical cleaning/disinfection!
- Only clean and disinfect the product manually.
- Do not sterilize the product under any circumstances.

Damage to the product due to inappropriate cleaning/disinfecting agents and/or excessive temperatures!
- Only use cleaning/disinfecting agents approved for surface cleaning. Follow the manufacturer's instructions for the respective cleaning/disinfecting agent.
- Observe specifications regarding concentration, temperature and exposure time.

5.5.2 Validated cleaning and disinfection procedure

<table>
<thead>
<tr>
<th>Validated procedure</th>
<th>Special features</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe disinfection for electrical devices without sterilization</td>
<td>-</td>
<td>Chapter Wipe disinfection for electrical devices without sterilization</td>
</tr>
</tbody>
</table>

5.6 Wipe disinfection for electrical devices without sterilization

<table>
<thead>
<tr>
<th>Phase</th>
<th>Step</th>
<th>T [°C/°F]</th>
<th>t [min]</th>
<th>Conc. [°C]</th>
<th>Water quality</th>
<th>Chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Wipe disinfection</td>
<td>RT</td>
<td>≥1</td>
<td>-</td>
<td>-</td>
<td>Melasceptol HBV wipes 50 % Propan-1-ol</td>
</tr>
</tbody>
</table>

RT: Room temperature

Phase I:
- Remove any visible residues with a disposable disinfectant wipe.
- Wipe all surfaces of the optically clean product with a fresh, disposable disinfectant wipe.
- Observe the specified application time (1 min minimum).

5.7 Inspection, maintenance and checks

- Inspect the product after each cleaning and disinfecting cycle to be sure it is clean, functional, and undamaged.
- Inspect all cables, and in particular electrode cables, for any damage to their insulation.
- Set aside the product if it is damaged.
- Perform a safety inspection annually, see Maintenance.

5.8 Storage and transport

⚠️ CAUTION
Damage to the product caused by switch-on to early after storage/transport at temperature below +10 °C!
- Allow the irrigation device to acclimatize at room temperature for about 3 hours.

- Transport the product only in its original box.
- Observe storage and transport conditions, see Ambient conditions.
6. Maintenance

The GN090 irrigation device requires no maintenance.

Note
Maintenance must only be carried out by authorized personnel. If necessary, the circuit diagrams and the service manual, which contains all the necessary documents, are provided for this.

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6.1 Safety inspection

A safety inspection must be carried out annually.

- Only have the product and its accessories inspected by persons who possess the requisite training, knowledge and experience who are authorized to do so.
- If the maximum values stated in the accompanying checking protocol for safety inspection are exceeded, the device must be sent in.

For technical service, please contact your national B. Braun/Aesculap agency, see Technical Service.

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**BRAUN SHARING EXPERTISE**

**Inspection protocol – safety inspection**

<table>
<thead>
<tr>
<th>TEST INTERVAL:</th>
<th>1 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE OF DEVICE:</td>
<td>JET Irrigation Unit GN090</td>
</tr>
<tr>
<td>MANUFACTURED BY:</td>
<td>Aesculap AG, Am Aesculap-Platz 78532 Tutzing/Germany</td>
</tr>
<tr>
<td>RESPONSIBLE</td>
<td>SN: .................................. INVENTORY NO.: .................................. ORGANIZATION: ..................................</td>
</tr>
</tbody>
</table>

**SCOPE OF INSPECTION**

<table>
<thead>
<tr>
<th>1.) VISUAL INSPECTION</th>
<th>2.) ELECTRICAL INSPECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Inspection of power cable for visually detectable damage</td>
<td>Measured value</td>
</tr>
<tr>
<td>1.2 Inspection of foot control for visually detectable damage</td>
<td>Verdict</td>
</tr>
<tr>
<td>1.3 Type plate still present and readable</td>
<td>PASS / FAIL</td>
</tr>
<tr>
<td>1.4 Check fuse links for prescribed values</td>
<td></td>
</tr>
<tr>
<td>1.5 Overall condition of device: dirt, damage</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Place/Date</th>
<th>Inspector/Signature</th>
<th>Responsible Organization</th>
</tr>
</thead>
</table>

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Fig. 5 Checking protocol for safety inspection
7. Troubleshooting list

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Detection</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit cannot be switched on</td>
<td>–</td>
<td>No supply voltage available</td>
<td>Check current</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>Fuse blown</td>
<td>Replace the fuse, see Fuse replacement</td>
</tr>
<tr>
<td>Toppet not moving</td>
<td>–</td>
<td>Hose clamp device contaminated</td>
<td>Clean hose clamp device</td>
</tr>
<tr>
<td>Amount of liquid released is too small or too large</td>
<td>–</td>
<td>Too little or too much pressure in the pressure cuff</td>
<td>Increase pressure through extra pumping or reduce by deflating</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>Incorrect settings or drip volume selected</td>
<td>Change setting, see Set the drip volume</td>
</tr>
<tr>
<td>No drips are being released</td>
<td>–</td>
<td>Drip release switched off</td>
<td>Switch on drip release for the desired operating type, see Combining drip release with the &quot;CUT&quot;/&quot;COAG&quot; operating modes</td>
</tr>
</tbody>
</table>

7.1 Fuse replacement

⚠️ Risk of death by electric shock! 
- Unplug the device before changing the fuses!

Specified fuses: TA020112 (T 1.25 AH/250 V)
- Unlatch clip B with a suitable screwdriver A.
- Remove fuse holder 32.
- Replace both fuse sets 33.
- Reinsert fuse holder 32 so that it audibly snaps into place.

Fig. 6 Device connector with fuse holder and voltage switching element

Legend
30 Device connector
32 Fuse holder
33 Fuse sets
A Screwdriver
B Clip

Note
If the fuses burn out frequently, the device is faulty and should be repaired, see Technical Service.
8. Technical Service

**WARNING**

Risk of injury and/or malfunction!
- Do not modify the product.

For service and repairs, please contact your national B. Braun/Aesculap agency.

Modifications carried out on medical technical equipment may result in the loss of guarantee/warranty rights and forfeiture of applicable licenses.

Service addresses

Aesculap Technischer Service
Am Aesculap-Platz
78532 Tutlingen / Germany
Phone: +49 (7461) 95 - 1601
Fax: +49 (7461) 14 - 939
E-Mail: ats@aesculap.de

Or in the US:

Aesculap Technical Services
615 Lambert Pointe Drive
Hazelwood
MO, 63042 USA

Aesculap Repair Hotline
Phone: +1 (800) 214 - 3382
Fax: +1 (314) 895 - 4420

Other service addresses can be obtained from the address indicated above.

9. Accessories/Spare parts

**Power cord**

<table>
<thead>
<tr>
<th>Art. no.</th>
<th>Approvals</th>
<th>Length [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE730</td>
<td>Europe</td>
<td>5.0</td>
</tr>
<tr>
<td>TE714</td>
<td>United Kingdom and Ireland</td>
<td>5.0</td>
</tr>
<tr>
<td>TE735</td>
<td>USA, Canada, Japan</td>
<td>3.5</td>
</tr>
</tbody>
</table>

**Potential compensation line**

<table>
<thead>
<tr>
<th>Art. no.</th>
<th>Designation</th>
<th>Length [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GKS35</td>
<td>Potential-compensation line</td>
<td>4.0</td>
</tr>
<tr>
<td>TA008205</td>
<td>Potential-compensation line</td>
<td>0.8</td>
</tr>
</tbody>
</table>

**Irrigating coagulation forceps**

**Note**

Information concerning the instruments is available on request and can be found in Aesculap brochure C-304-81.

**Spare parts**

<table>
<thead>
<tr>
<th>Art. no.</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4020112</td>
<td>Fuses that can be used with this unit</td>
</tr>
<tr>
<td>GN090180</td>
<td>GN090 HF device connection cable</td>
</tr>
<tr>
<td>GN094</td>
<td>Remove the tube set</td>
</tr>
<tr>
<td>GN092</td>
<td>JET foot switch</td>
</tr>
<tr>
<td>GN093</td>
<td>Pressure cuff with manometer</td>
</tr>
<tr>
<td>TA022130</td>
<td>Notes on electromagnetic compatibility (EMC)</td>
</tr>
</tbody>
</table>

**Note**

Information on other accessories and replacement parts is available on request and can be found in Aesculap brochure C-304-81.

10. Technical data

**Classification acc. to Directive 93/42/EEC**

<table>
<thead>
<tr>
<th>Art. no.</th>
<th>Designation</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN090</td>
<td>Irrigation device</td>
<td>IIA</td>
</tr>
</tbody>
</table>

Mains voltage ranges

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-120 V</td>
<td>+/- 10 %</td>
</tr>
<tr>
<td>220-240 V</td>
<td>+/- 10 %</td>
</tr>
</tbody>
</table>

Frequency

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-60 Hz</td>
<td></td>
</tr>
</tbody>
</table>

Current consumption

<table>
<thead>
<tr>
<th>Current (A)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.30-0.40 A</td>
<td>for 100-120 V</td>
</tr>
<tr>
<td>0.13-0.20 A</td>
<td>for 220-240 V</td>
</tr>
</tbody>
</table>

Protection class (acc. to IEC/ DIN EN 60601-1)

<table>
<thead>
<tr>
<th>Protection Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
</tr>
</tbody>
</table>

Device protection

<table>
<thead>
<tr>
<th>Protection Type</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1.25 AH / 250 V</td>
<td></td>
</tr>
</tbody>
</table>

Time-Current characteristic

<table>
<thead>
<tr>
<th>Time (ms)</th>
<th>Current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Breaking capacity

<table>
<thead>
<tr>
<th>Breaking Capacity</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>H (1500 A)</td>
<td></td>
</tr>
</tbody>
</table>

Construction

- mm x mm x mm

Dimensions

- L x W x H

Weight

- 4.7 kg
11. Disposal

Adhere to national regulations when disposing of or recycling the product, its components and its packaging! The recycling pass can be downloaded from the Extranet as a PDF document under the respective article number. (The recycling pass includes disassembling instructions for the product, as well as information for proper disposal of components harmful to the environment.) Products carrying this symbol are subject to separate collection of electrical and electronic devices. Within the European Union, disposal is taken care of by the manufacturer as a free-of-charge service.

- Detailed information concerning the disposal of the product is available through your national B. Braun/Aesculap agency, see Technical Service.

12. Distributor in the US/Contact in Canada for product information and complaints

Aesculap Inc.
3773 Corporate Parkway
Center Valley, PA, 18034,
USA

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Note
The atmospheric pressure of 700 hPa corresponds to a maximum operating altitude of 3 000 m.