

LARYNGOSTROSCOPE

Demuth

automatic

Operating instructions



Please always keep near the equipment

LARYNGOSTROBOSCOPE



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Introduction

The Laryngostroboscope **Demuth** automatic is a progressive instrument of high quality.

In your own interest please read the instructions carefully and take notice of the precautions.



Please read the instructions !

Description

The Laryngostroboscope **Demuth** automatic is a fully automatic appliance. There are not any buttons to adjust the filters and the sensitiveness of the microphone. The tone phonated by the patient is recorded by a little airborne sound microphone $\varnothing 10$ mm which is fixed to the endoscope or to the patients collar. For the recording in the video-stroboscopic this tone will be given out by a socket of the appliance, as well as the basic frequency (f_0) and the sound pressure in dB (A). This is only valid for appliances with installed fade-in of the measured values. The formation of the basic frequency happens within the instrument without delay at 440 Hz and needs less than 20 ms at 120 Hz. The flash needs about 5 ms. These values produce an excellent and sharply defined picture. It is also possible to synchronise by a microphone fixed at the body. In this case the larynx could be gently displaced caused by the pressure of the contact surface.

It is economical to use separate Xenon-lamps for the flash-light and the permanent light. The differences in the colour-temperature which may occur are compensated by filters. You work with a pedal > stop – still 0-400° - slow motion 0.75 Hz <. You can double the frequency of the slow motion by pressing a button at the appliance. The speed of the slow motion may also adjust on other values between 0 and 2 Hz.

There is a second light exit to connect f.e. a head lamp or in case of lamp defect to finish the examination.

An installed ON/OFF-Airflow helps the optic not getting clouded.

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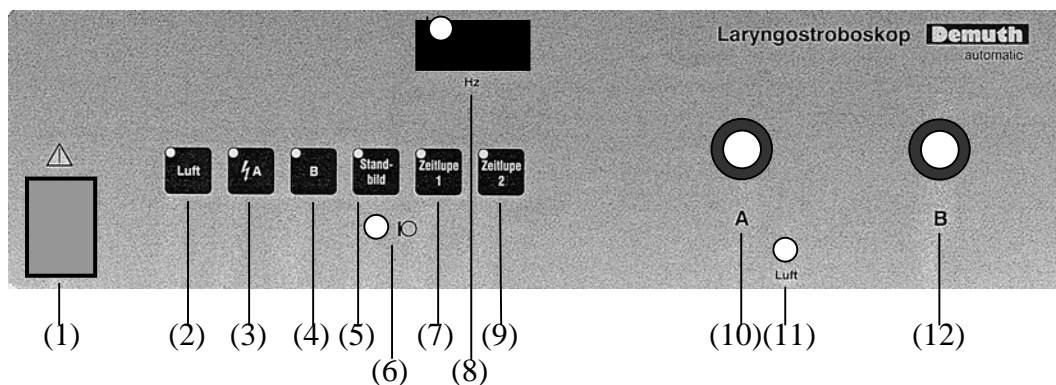
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Extent of delivery

1. Laryngostroscope **Demuth** automatic
2. Pedal for > stop – still – slow motion <
3. Airborne sound microphone with a plug 3.5 mm
4. Protection-contact-mainscable

How to set up and connect the appliance

Place the appliance near the patient on your treatment-unit. Be sure that there is enough space behind the appliance for the aircirculation. Connect the pedal's cable to the suitable socket on the backside of the appliance. Plug the airborne sound microphone into the socket O on the frontside of the appliance. Connect the AC Mains Cable to the mains. Connect the light cord to the light output socket A until it clicks into place. You may use all known rigid and flexible optics without any loss of light.



- | | |
|---|--|
| (1) Mainsswitch On/Off | (7) Slow motion 1 and indication |
| (2) Airflow On/Off | (8) Indication of the phonated frequency in Hz |
| (3) Stroboscopligh socket A | (9) Slow motion 2 and indication |
| (4) On/Off-Switch and dimmer for light output B | (10) Stroboscopligh output socket A |
| (5) Still-Indication | (11) Airflow input socket |
| (6) Input socket for the microphone | (12) Light output socket B |

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Putting into operation

Switch the appliance on with the mains switch **(1)**.



Please read the instructions !

Before the examination fix the airborne sound microphone to the endoscope or to the patient's collar. You find a suitable clip on the microphone. To get the optic of the endoscope cloudfree connect it to the air output socket **(11)** with an airhose. To switch the pump on press button **(2)**.

How to use

Start your examination as usual with the laryngoscopy. The pedal remains in the position >stop<. Ask your patient to phonate a tone. You may demonstrate a tone. This tone, loud or low, will be indicated in its basic frequency directly on the display **(8)** of the appliance. Press the pedal now to >still< and the larynx will be flashed in this frequency. You can see immediately a picture of the larynx which seems to stand. Between the position >stop< (starting position of the pedal) and the position >slow motion< (final position of the pedal) you find the position >still< (0-400°). In this position you can interpret the maximum amplitude and the occlusion of the vocal cords. In the final pedal position >slow motion< the larynx seems to vibrate with 0.75 Hz. You can double this frequency by pressing button **(9)**. In this position functional disorders of the voice are analysed.

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Precautions

It's only permitted to medical doctors or qualified employees, who are especially instructed, to use the appliance on patients. Use the appliance only in accordance with operating procedures explained in the operating instructions.

Use the appliance only in dry rooms and not close by inflammable narcotic gas (danger of explosion).

Connect the appliance only to orderly installed protection-contact-plugs to be sure of the earthing. The voltage indicated at the backside of the appliance must correspond to the local mains voltage.

Before you switch on the appliance inspect this connection for defects.

When changing the lamp or cleaning the appliance pull always the mains plug out.

It's only allowed to instructed employees to open the appliance and be sure that the mains plug is pulled out.

Do not look directly into a light output socket.

The end of a connected lightcable is getting warm. It may cause burnings of the skin or textile by touching it directly.

Do not cover the ventilation wholes at the backside and the bottom.

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Service and maintenance

The appliance is maintenance-free. In case of any superheat the appliance switches off automatically. After cooling you can use the appliance again. All cables should be usually inspected regularly. Damaged cables should be changed immediately. During this time the appliance should not be put in operation.

How to change a lamp

The lamps are easy to access. When the appliance is cooled down loosen the screws at the side and move the cover backwards. You can see a drawer on the right hand side. Loosen the two little screws and pull the drawer out. Remove the used lamps upwards and put in the new lamps. Do not touch the new lamps. Use the enclosed protecting cover. The flashtube is a special lamp and should be changed only by an introduced technical engineer.

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Engineering data

| | |
|-----------------------|--|
| Reduction | 70 bis 600 Hz 1:1 , 600 bis 1200 Hz 1:2 |
| Slow motion frequency | 0 to 2 Hz , fix 0,75 and 1,5 Hz |
| Still | phase displacement 0-400° |
| Microphone control | 0 to max. 20 ms. |
| Frequency indication | self-shinig display, hight of the digits 13 mm |
| Data issue | tone, basic frequency (fo) |
| Lamps | Xenophot and Xenon small curvature lamp 150W |
| 2. lightoutput | Xenophot 150 W , digitaly adjustable |
| Airflow | 1,5 Litres / min |
| AC mains input | 230 V ~ |
| Power input | max. 340 W |
| Size | B 385mm, H 128mm, D 295 mm |
| Weight | 13 Kg |
| Security | CE |
| Classifikation | after MPG I |

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Functional disorders

In case of functional disturbance, smoke, unusual noise or smell, if fluid or foreign substance get into the appliance or if the appliance dropped or was damaged:

Disconnect the appliance from the mains and contact the manufacturing firm.

The appliance should only be repaired by introduced engineers with original **Demuth** replacement parts.

Garantie

There is no garantie in case of any kind of use that is not in accordance with the operating procedures explained in the operating instructions nor garantie when opening the appliance.

Replacement parts

Order number

| | |
|----------|---|
| LMDS 3,5 | Airborne sound microphone with a clip and a 3m cable, plug 3,5 mm |
| FHDS | Pedal with connection cable (3m long) |
| LSDS | Airtube silicon 4 x 1,5 mm, 2 m long |
| NKDS | AC mains connection cable, 3 pols, 2 m long |
| DS64633 | Replacement lamp A Xenophot HLX 64633 15V /150 W |
| DS64634 | Replacement lamp B Xenophot HLX 64634 EFR 15/150 W |
| DSFLASH | Replacement Flash-tube |

