Bronchoscope »Hemer«

- Sampling channel for pressure and tidal gas measurement
- Multiple lateral slits for improved ventilation
- Connector for jet ventilator
- ISO standard cone for conventional ventilation systems
- Length markers

*A breath of fresh air in rigid bronchoscopy*
Procedures in surgical bronchology such as transbronchial fine needle biopsy, recanalisation with laser resection or argon plasma coagulation, dilatation, stent placement or cryotherapy are relative or absolute indications for rigid bronchoscopy. JET ventilation, ideally under general, intravenous anaesthesia allows free access to the bronchial system using the rigid bronchoscope. While the oxygenation of the patient under JET ventilation can be monitored with pulse oxymetry, methods of capnography and tidal gas analysis as well as methods for measuring pressure are not clinically established. If expiration is obstructed, the JET pressure brings with it the risk of barotrauma. To avoid endobronchial burns during argon plasma coagulation or laser resection, the inspiratory oxygen concentration must be reduced to such an extent that the oxygen concentration on expiration is 0.21.

Our aim was to develop a new rigid bronchoscope that would avoid the risks of barotrauma, hypo- or hyperventilation and endobronchial burns.

The pressure on inspiration resulting from the JET nozzle and entrainment reaches a plateau in the working channel at a distance of more than 10 cm from the instrument opening which can be measured without any significant change in pressure as far as the patient opening and subsequent bronchial system. As a result, it is possible to measure the inspiratory pressure at one point along the plateau which can be taken as being representative of the inspiratory pressure. To measure the pressure, the lumen of the working channel is connected to a sampling channel at a distance of 14 cm from the instrument opening.

Using the sampling channel, the pressure on inspiration and expiration, the oxygen concentration on inspiration and expiration and the carbon dioxide concentration in the tidal gas can be measured at the same time. The automatic shutdown of the JET ventilators if the pressure is exceeded was successful in trials and allows pressure-controlled JET ventilation. For gas analysis, JET frequencies below 18/min should be selected. Pressure measurement and automatic shutdown of JET ventilators when the pressure is exceeded also functions during high frequency operation. The measuring devices for pressure and breath gas and the JET pressure control are connected via commercially available 3-way taps and connecting tubes to the Luer connector of the sampling channel.

The new rigid bronchoscope with sampling channel for pressure and tidal gas, JET ventilation can be performed with the same quality and same safety level as conventional ventilation. The tidal gas analysis allows the oxygen concentration to be controlled and CO₂-controlled narcosis avoids hyperventilation. The bronchoscopist has a convenient instrument with a free lumen in various sizes allowing a suitable size bronchoscope and instrument set to be used.

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**Literature:**

The bronchoscope «Hemer» was developed with the cooperation of Dr. med. Alfred Pobloth and Dr. med. Günther Reichle.
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Fully free inner volume
with smooth inner surfaces -
without disturbing corners and edges

Proximal illumination insert

Luer connector
for connecting conventional ventilation systems

Sampling channel
for measuring carbon dioxide, oxygen and airway pressure

ISO standard cone
for connecting conventional ventilation systems

Lateral respiration connector

Jet ventilation nozzle
with bayonet connector for fast and safe locking to the bronchoscope

Luer connector
for connecting the sampling channel and monitoring units
Ventilation and Monitoring

with the new rigid bronchoscope »Hemer«

Ventilation

- Jet ventilation unit with FiO₂ setting
- Jet ventilation unit with pressure cutoff
- Optimum ventilation + O₂ reduction for laser and APC application
- Optimum ventilation + avoidance of baro-trauma

Monitoring ...

- Gas analysis
- Pulsoxymetry
- Pressure measurement
- Optimum ventilation by measuring expired CO₂ and control of FiO₂
- Avoidance of hypoxaemia
- Pressure measurement to avoid trauma and for pressure-controlled jet ventilation

Jet ventilation with optimised monitoring ...

... for greater patient safety
Bronchoscope »Hemer«

**Bronchoscope Tubes**

<table>
<thead>
<tr>
<th>Bronchoscope Tubes</th>
<th>Inner ø</th>
<th>WL</th>
<th>OL</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>6 x 400</td>
<td>6.5 mm</td>
<td>355 mm</td>
<td>400 mm</td>
<td>8214.064</td>
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<td>7 x 400</td>
<td>7.5 mm</td>
<td></td>
<td>400 mm</td>
<td>8214.074</td>
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<td>8 x 430</td>
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<td>430 mm</td>
<td>8214.084</td>
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<td>9 x 430</td>
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<td>430 mm</td>
<td>8214.094</td>
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<tr>
<td>10 x 430</td>
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<td></td>
<td>430 mm</td>
<td>8214.104</td>
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<tr>
<td>12 x 350</td>
<td>12.0 mm</td>
<td>305 mm</td>
<td>350 mm</td>
<td>8214.124</td>
</tr>
</tbody>
</table>

Particularly suitable for interventional bronchoscopy.

"Excavator" Biopsy Forceps by Reichle

The "Excavators" are particularly suitable for removing large portions of tissue and can also be used in conjunction with laser resection or argon plasma coagulation (APC).

*Required telescope: 8465.30*
Bronchoscope »Hemer«

Accessories

- **Telescope adapter**
  - Suitable Tubes
  - Matching Telescope
  - Type
  - 8214.084
  - 8214.094
  - 8214.104
  - 8214.064
  - 8214.074
  - 8214.124
  - 15 401.071

  The telescope adapter guarantees a safe connection between the telescope and bronchoscope tube. It prevents the telescope slipping accidentally.

- **Nozzle for jet ventilation**
  - (only for bronchoscope 8214.xxx)
  - incl.: Luer connector (15401.071) ...... 8238.502

- **Sealing cap**
  - with telescope sealing cap for telescopes
  - Ø 5.5 mm ......................... 8020.18
  - Ø 4 mm, 3.4 mm and 2.7 mm ...... 8021.18

- **Adjustable telescope magnifier** ...... 4205.20

  also:

- **Sealing cap** with monitoring window
  - (with outer cone, blue) .............. 8205.12

- **Universal sealing cap** by Lehnhardt
  - incl. 2 telescope sealing caps
    - (89.01, 89.03) .................... 8020.15

- **Spare telescope sealing caps**
  - (pack of 10)
    - for telescopes
      - Ø 5.5 mm ......................... 89.03
      - Ø 4 mm .................................. 89.02
      - Ø 3.4 mm and 2.7 mm ............. 89.01

- **Proximal illumination insert** ........ 8217.12

- **Stopper** .......................... 8256.99

- **Sealing cap** .......................... 8205.13

- **LUER sealing cap** .................. 887.00

- **Cold light connector**
  - ACM ............................... 8087.00
  - Storz ............................ 8088.00

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