Endoscopic Pituitary Surgery
according to CAPPABIANCA/CAVALLO/de DIVITIIS
Endoscopic Pituitary Surgery
according to CAPPABIANCA/CAVALLO/de DIVITIS

The endoscopic endonasal approach to the sellar region is a recent evolution of the conventional transsphenoidal technique performed with the operating microscope. This method can be designated as “pure” pituitary endoscopy and not only as a complement to the microscopic intervention – the term “pure” being applied to a surgical procedure in which the endoscope is the only optical device being used.

The endoscopic endonasal transsphenoidal approach to the sella is performed via an anterior sphenoidotomy, through the enlargement of the natural sphenoid ostium, with a rigid diagnostic endoscope as the sole visualizing tool, and without the use of a transsphenoidal retractor. Three main steps make up this surgical procedure: nasal, sphenoidal and sellar.

During the nasal step the rigid endoscope (18 cm in length, 4 mm in diameter) is inserted in the chosen nostril up to the middle turbinate, that is gently pushed laterally to enlarge the space between it and the nasal septum. The endoscope is then advanced inside the nasal cavity up to the choana and along its roof, in the spheno-ethmoid recess, until to reach the natural sphenoid ostium.

The sphenoid step starts with the coagulation of the spheno-ethmoid recess and the detachment of the nasal septum from the sphenoid prow using a microdrill. Once the anterior wall of the sphenoid sinus is exposed on both sides, it is removed all around with different bone punches. One or more septa inside the sphenoid sinus are removed with a nasal forceps.

During the sellar step, the endoscope can be held by a second surgeon in order to free both surgeon’s hands. Alternatively a longer scope (30 cm in length, 4 mm in diameter) can be used and fixed to an autostatic holder. After the endoscopic identification of all the anatomic landmarks around the sella, its floor is opened and the dura incised with a telescopic blade. The sellar lesion is then removed with different curettes depending on the size and position of the pituitary tumor. After lesion removal the sellar floor is repaired, when necessary, with different autologous or heterologous or synthetic materials, according to the common guidelines.

In the settings of continuous research for new and better instruments, constant and on-going development of surgical tools is necessary.

The main advantages of the endoscopic procedure arise from the absence of the nasal speculum and from the use of the endoscope instead of the microscope. Without the transsphenoidal retractor, the endoscope discloses its better properties, permitting a wider vision of the surgical field, with a close-up “look” inside the anatomy. The whole procedure is less traumatic. No post-operative nasal packing is necessary thus improving significantly the patient’s compliance. The percentage of complications is reduced, as compared to the traditional microsurgical approach. Treatment of recurrences is easier because the submucosal nasal phase is avoided and the anatomical orientation is much better.
Endoscopic Pituitary Surgery
according to CAPPABIANCA/CAVALLO/de DIVITIIS

Patient positioning

Operating room setup

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Recommended Set acc. to CAPPABIANCA/DE DIVITIIS
Endoscopic Visualization

1. 28132 AA Hopkins® Straight Forward Telescope 0°, enlarged view, diameter 4 mm, length 18 cm, autoclavable
2. 7230 AS Irrigation Sheath, O.D. 4.8 x 6.0 mm, working length 14 cm, for use with Hopkins® Telescopes 28132 AA
3. 28132 BA Hopkins® Forward-Oblique Telescope 30°, enlarged view, diameter 4 mm, length 18 cm, autoclavable
4. 7230 BS Irrigation Sheath, O.D. 4.8 x 6.0 mm, working length 14 cm, for use with Hopkins® Telescopes 28132 BA
5. 28164 AA Hopkins® Straight Forward Telescope 0°, enlarged view, diameter 4 mm, length 30 cm, autoclavable
6. 28164 ASA Irrigation Sheath, O.D. 4.8 x 6.0 mm, working length 24 cm, for use with Hopkins® Telescopes 28164 AA
7. 28272 RKB Holding System, autoclavable
8. 28132 FA Hopkins® Forward-Oblique Telescope 45°, enlarged view, diameter 4 mm, length 18 cm, autoclavable (not illustrated)
9. 7230 FS Irrigation Sheath, O.D. 4.8 x 6.0 mm, working length 14 cm, for use with Hopkins® Telescopes 28132 FA (not illustrated)
10. 7219 AA Hopkins® Straight Forward Telescope 0°, enlarged view, diameter 2.7 mm, length 18 cm, autoclavable (not illustrated)
11. 28164 CAA Irrigation Sheath, O.D. 3.8 mm, working length 15 cm, for use with Hopkins® Telescopes 7219 AA (not illustrated)

Nasal and Sphenoid Stage

1. 474001 FREER Suction Elevator, with stylet, length 19 cm
2. 628702 Antrum Curette, oblong small size, length 19 cm
3. 660500 Sickle Knife, length 18 cm
4. 459010 STAMMBERGER RHINOFORCE® II Antrum Punch, upside backward cutting, length 10 cm
5. 449211 RHINOFORCE® II Nasal Scissors, working length 13 cm, straight
6. 452501 B MACKAY-GRÜNWALD RHINOFORCE® II Nasal Forceps, through-cutting, tissue sparing, delicate, upturned 45°, size 1.8 x 3 mm, working length 13 cm
7. 452001 B MACKAY-GRÜNWALD RHINOFORCE® II Nasal Forceps, through-cutting, tissue sparing, delicate, straight, size 1.8 x 3 mm, working length 13 cm
8. 28164 MKB KERRISON Punch, upbiting 40° forward, size 2 mm, working length 17 cm
9. 28164 MKC KERRISON Punch, upbiting 40° forward, size 3 mm, working length 17 cm
10. 651050 STAMMBERGER Punch, circular cutting for sphenoid, ethmoid and choanal atresia, working length 18 cm, diameter 4.5 mm
11. 651055 STAMMBERGER Punch, circular cutting, for sphenoid, ethmoid and choanal atresia
12. 634824 STRÜMPPEL Forceps, with oval, fenestrated cupped jaws, working length 12.5 cm
13. 634825 A STRÜMPPEL Forceps, with oval, fenestrated, cupped jaws, 45° upturned, working length 12.5 cm
14. 839310 N Unipolar Suction-Coagulation Tube, insulated, with connector pin for unipolar coagulation, diameter 3 mm, working length 10 cm
15. 28164 ED Coagulation Ball Electrode, diameter 2 mm, laterally curved, working length 13 cm (not illustrated)
16. 28164 EF Coagulation Ball Electrode, diameter 4 mm, laterally curved, working length 13 cm
Sellar Stage

- 663231 Forceps, with round spoon, diameter 2.5 mm, straight, working length 18 cm
- 663239 Forceps, with oval, fenestrated, cupped jaws, 2.5 mm wide, straight, working length 18 cm
- 663301 Scissors, straight, delicate, working length 18 cm
- 663304 Scissors, curved right, delicate, working length 18 cm
- 663305 Scissors, curved left, delicate, working length 18 cm
- 663307 Scissors, 45° upturned, delicate, working length 18 cm
- 663327 Scissors, curved up 45°, delicate, sheath 360° rotatable, working length 18 cm
- 28164 KK de DIVITIIS-CAPPABIANCA Scalpel, with telescopic blade, consisting of:
  - 28164 MA Handle
  - 28164 MB Outer Sheath
  - 28164 MS Micro-Knife, sickle-shaped
- 28164 M de DIVITIIS-CAPPABIANCA Scalpel, with telescopic blade, consisting of:
  - 28164 MA Handle
  - 28164 MB Outer Sheath
  - 28164 MC Micro Knife, pointed
- 28164 DM Elevator, sharp, slightly curved spatula, size 2 mm, with round handle, length 25 cm
- 28164 DS Elevator, sharp, slightly curved spatula, size 3 mm, with round handle, length 25 cm
- 28164 DB Dissector, sharp, round spatula, tip angled 45°, size 3 mm, with round handle, length 25 cm
- 28164 H CASTELNUOVO Hook, 90°, blunt, length 25 cm, with round handle
- 28164 KB Curette, round spoon, tip slightly angled, with round handle, length 25 cm
- 28164 RN CAPPABIANCA-de DIVITIIS Curette, round wire, I.D. 3 mm, tip angled 45°, with round handle, length 25 cm
- 28164 RE CAPPABIANCA-de DIVITIIS Ring-Curette, round wire, ductile, I.D. 3 mm, tip angled 45°, with round handle, length 25 cm
- 28164 RO CAPPABIANCA-de DIVITIIS Curette, round wire, I.D. 5 mm, tip angled 45°, with round handle, length 25 cm
- 28164 RJ CAPPABIANCA-de DIVITIIS Ring-Curette, round wire, ductile, I.D. 5 mm, tip angled 45°, with round handle, length 25 cm
- 28164 RI De DIVITIIS-CAPPABIANCA Ring-Curette, round wire, I.D. 3 mm, tip angled 90°, with round handle, length 25 cm
- 28164 RG Same, I.D. 5 mm
- 28164 RB de DIVITIIS-CAPPABIANCA Curette, round wire, I.D. 3 mm, distally curved shaft, with round handle, length 25 cm
- 28164 RA Same, I.D. 5 mm
- 28164 RV CAPPABIANCA-de DIVITIIS Ring-Curette, round wire, I.D. 3 mm, tip laterally angled 90°, with round handle, length 25 cm
- 28164 RD Same, I.D. 5 mm
- 28164 RW Same, I.D. 7 mm
- 28164 RF CAPPABIANCA-de DIVITIIS Ring Curette, round wire, I.D. 5 mm, vertical long curved, with round handle, length 25 cm
- 28164 RSB de DIVITIIS-CAPPABIANCA Suction-Curette, with round wire, I.D. 5 mm, tip angled 45°
- 28164 RSC Same, I.D. 7 mm
- 28164 RT CAPPABIANCA-de DIVITIIS Suction Curette, basket-shape, round wire, size 5 mm, length 25 cm
- 28164 RU Same, size 6.5 mm
28164 BDL  **Take-apart Bipolar Forceps**, width 1 mm, delicate jaws, distally angled 45°, vertical closing, outer diameter 3.4 mm, working length 20 cm, consisting of:
- 26284 HM  **Handle**
- 26284 AS  **Outer Tube**
- 26284 BS  **Inner Tube**
- 28164 FGL  **Bipolar Insert**

28164 BDM  **Take-apart Bipolar Forceps**, width 1 mm, delicate jaws, distally angled 45°, horizontal closing, outer diameter 3.4 mm, working length 20 cm, consisting of:
- 26284 HM  **Handle**
- 26284 AS  **Outer Tube**
- 26284 BS  **Inner Tube**
- 28164 FGM  **Bipolar Insert**

662882  **FRANK-PASQUINI Suction Tube**, angular, O.D. 2.4 mm, tip curved upwards, ball end, with grip plate and cut-off hole, Luer, working length 13 cm

662885  **Same**, O.D. 3 mm

649183  **FERGUSON Suction Tube**, with cut-off hole and stylet, Luer, working length 15 cm, 10 Fr.

649184  **Same**, 12 Fr.

649185  **Same**, 15 Fr.

649179 B  **Suction Tube**, malleable, with elongated cut-off hole and stylet, Luer, working length 15 cm, 4 Fr.

649180 B  **Same**, 6 Fr.

649182 B  **Same**, 8 Fr.

649183 B  **Same**, 10 Fr.

4071170-1  **UNIDRIVE NEURO** (not illustrated)

**Recommended Containers for Sterilization:**
- Telesopes: 39301 B (2x)
- Instruments: 39360 AK
- Articulated stand: 39301 J
Telescopes
The endoscopic endonasal transsphenoidal approach is performed using rigid endoscopes without any working channel. Most of the procedure is carried out with a 0° degree, 18 cm in length endoscope while the use of angled scopes is required only in selected conditions.

The 30 cm in length endoscope is used together with the endoscope holder when the surgeon prefers to work with a fixed image on the screen.

The 2.7 mm in diameter endoscope is useful in pediatric patients or in narrow nasal cavities.
**Instrument Details**

**Nasal and Sphenoidal Phase**

### Nasal Instruments

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>474001</td>
<td><strong>FREER Suction Elevator</strong>, with stylet, length 19 cm</td>
</tr>
<tr>
<td>628702</td>
<td><strong>Antrum Curette</strong>, oblong, small size, length 19 cm</td>
</tr>
<tr>
<td>459010</td>
<td><strong>STAMMBERGER RHINOFORCE® II Antrum Punch</strong>, upside backward cutting, working length 10 cm</td>
</tr>
<tr>
<td>449211</td>
<td><strong>RHINOFORCE® II Nasal Scissors</strong>, small model, straight, length of cut 10 mm, working length 13 cm</td>
</tr>
<tr>
<td>452501 B</td>
<td><strong>MACKAY-GRÜNWALD RHINOFORCE® II Nasal Forceps</strong>, throug-cutting, 45° upturned, delicate, tissue-sparing, 8 × 3 mm, size 1, working length 13 cm</td>
</tr>
<tr>
<td>452001 B</td>
<td><strong>MACKAY-GRÜNWALD RHINOFORCE® II Nasal Forceps</strong>, throug-cutting, straight, delicate, tissue-sparing, 8 × 3 mm, size 1, working length 13 cm</td>
</tr>
<tr>
<td>Instrument ID</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>28164 MKB</td>
<td>Punch, upbiting 60° forward, size 2 mm, working length 17 cm</td>
</tr>
<tr>
<td>28164 MKC</td>
<td>Punch, upbiting 60° forward, size 3 mm, working length 17 cm</td>
</tr>
<tr>
<td>651050</td>
<td>STAMMBERGER Punch, circular cutting, for sphenoid, ethmoid and choanal atresia, diameter 4.5 mm, working length 18 cm</td>
</tr>
<tr>
<td>651055</td>
<td>STAMMBERGER Punch, circular cutting, for sphenoid, ethmoid and choanal atresia, diameter 3.5 mm, working length 18 cm</td>
</tr>
<tr>
<td>634824</td>
<td>STRUMPEL Forceps, with oval, fenestrated, cupped jaws, straight, width 2.5 mm, working length 12.5 cm</td>
</tr>
<tr>
<td>634825 A</td>
<td>STRUMPEL Forceps, with oval, fenestrated, cupped jaws, 45° upturned, width 2.5 mm, working length 12.5 cm</td>
</tr>
</tbody>
</table>
Mono- and bipolar instruments for bleeding management

The monopolar instruments are recommended for the coagulation of the nasal mucosa. The bipolar forceps (see page 15) are recommended for the coagulation of arterial bleedings, e.g. branches of the sphenopalatine artery, of the dura mater or the intercavernous sinus.

839310 N  **Unipolar Suction-Coagulation Tube**, insulated, with connector pin for unipolar coagulation, diameter 3 mm, working length 10 cm

28164 ED  **Unipolar Suction-Coagulation Tube**, insulated, with connector pin for unipolar coagulation, diameter 3 mm, working length 10 cm

28164 EF  **Unipolar Suction-Coagulation Tube**, insulated, with connector pin for unipolar coagulation, diameter 4 mm, working length 13 cm
### Instrument Details
#### Sellar Phase

### Knives

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>660500</td>
<td><strong>Sickle Knife</strong>, length 18 cm</td>
<td></td>
</tr>
<tr>
<td>28164 MP</td>
<td><strong>Round Knife</strong>, vertical, 3.5 x 2.5 mm</td>
<td></td>
</tr>
</tbody>
</table>
| 28164 M | deDIVITIIS-CAPPABIANCA **Scalpel**, with retractable blade, consisting of: | 28164 MA **Handle**  
28164 MB **Sheath**  
28164 MC **Micro Knife**, pointed |
| 28164 KK | deDIVITIIS-CAPPABIANCA **Scalpel**, with retractable blade, consisting of: | 28164 MA **Handle**  
28164 MB **Sheath**  
28164 MS **Micro Knife**, sickle-shaped |

### Curettes in different diameters for safe and effective pituitary adenoma removal

<table>
<thead>
<tr>
<th>Inner diameter 3 mm. Recommended for Micro-Adenoma</th>
<th>Inner diameter 5 mm. Recommended for Macro-Adenoma</th>
<th>Inner diameter 7 mm. Recommended for Macro-Adenoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>28164 RN</td>
<td>28164 RO</td>
<td>–</td>
</tr>
<tr>
<td>28164 RI</td>
<td>28164 RG</td>
<td>–</td>
</tr>
<tr>
<td>28164 RB</td>
<td>28164 RA</td>
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<tr>
<td>28164 RV</td>
<td>28164 RD</td>
<td>28164 RW</td>
</tr>
<tr>
<td>–</td>
<td>28164 RF</td>
<td>–</td>
</tr>
</tbody>
</table>
Malleable Curettes

- 28164 RE: CAPPABIANCA-de DIVITIIS Ring Curette, with round wire, malleable, inner diameter 3 mm, tip angled 45°, with round handle, length 25 cm
- 28164 RJ: Same, inner diameter 5 mm

Double Function Curettes

- 28164 RSB: deDIVITIIS-CAPPABIANCA Suction Curette, blunt, inner diameter 5 mm, tip angled 45°, Luer, length 25 cm
- 28164 RSC: Same, inner diameter 7 mm
- 28164 RT: CAPPABIANCA-de DIVITIIS Suction Curette, with basket, round, size 5 mm, rotatable tube, Luer, length 25 cm
- 28164 RU: CAPPABIANCA-de DIVITIIS Suction Curette, with basket, round, size 6.5 mm, rotatable tube, Luer, length 25 cm

Curettes with special tips

- 28164 KB: Curette, round spoon, tip slightly angled, size 2 mm, with round handle, length 23 cm
Instrument Details
Sellar Phase

Dissectors for the sellar step of the procedure

- **28164 DB** Dissector, sharp, tip angled 45°, size 3 mm, length 25 cm, round spatula, with round handle
- **28164 DM** Elevator, sharp, slightly curved spatula, straight, size 3 mm, with round handle, length 25 cm
- **28164 DS** Elevator, sharp, slightly curved spatula, tip angled 15°, size 2 mm, with round handle, length 25 cm

Scissors for dural incision and intradural dissection

- **663301** Scissors, delicate, straight, working length 18 cm
- **663304** Scissors, very delicate, curved to right, working length 18 cm
- **663305** Scissors, very delicate, curved to left, working length 18 cm
- **663307** Scissors, very delicate, 45° upwards curved, working length 18 cm
- **663327** Scissors, delicate, 45° upwards curved, sheath 360° rotatable, working length 18 cm
Forceps

663231 Forceps, with round spoon, straight, diameter 2.5 mm, working length 18 cm

663239 Forceps, with oval, fenestrated, cupped jaws, 2.5 mm wide, straight, working length 18 cm

Bipolar instruments for bleeding management

The bipolar forceps are recommended for the coagulation of arterial bleedings, e.g. branches of the sphenopalatine artery, of the dura mater or the intercavernous sinus

28164 BDL Take-apart Bipolar Forceps, width 1 mm, delicate jaws, distally angled 45°, vertical closing, outer diameter 3.4 mm, working length 20 cm, consisting of:
26284 HM Handle
26284 AS Outer Tube
26284 BS Inner Tube
28164 FGL Bipolar Insert

28164 BDM Take-apart Bipolar Forceps, width 1 mm delicate jaws, distally angled 45°, horizontal closing, outer diameter 3.4 mm, working length 20 cm, consisting of:
26284 HM Handle
26284 AS Outer Tube
26284 BS Inner Tube
28164 FGM Bipolar Insert
Suction Tubes

- **649182** FERGUSON Suction Tube
- **649183** FERGUSON Suction Tube, with cut-off hole and stylet, LUER, 10 Fr., working length 15 cm
- **649184** FERGUSON Suction Tube, with cut-off hole and stylet, LUER, 12 Fr., working length 15 cm
- **662882** FRANK-PASQUINI Suction Tube, knee-bent, tip curved upwards, ball end, with grip plate and cut-off hole, LUER, diameter 2.4 mm, working length 13 cm
- **662885** Same, diameter 3 mm
- **649179 B** Suction Tube, malleable, with elongated cut-off hole and stylet, LUER, working length 15 cm, 4 Fr.
- **649180 B** Same, 6 Fr.
- **649182 B** Same, 8 Fr.
- **649183 B** Same, 10 Fr.
CLEARVISION® II System
for intraoperative cleaning of the front lens

403341 01 CLEArVIsION® II Set,
lens irrigation system for telescopes,
power supply: 100–240 VAC, 50/60 Hz
consisting of:
403341 20 CLEArVIsION® II
400 A Mains Cord
200102 30 Footswitch
403341 40 Silicone Tubing Set, sterilizable

Irrigation sheath

<table>
<thead>
<tr>
<th>Detail</th>
<th>Cat. No.</th>
<th>O.D.</th>
<th>Working length</th>
<th>Cat. No.</th>
<th>Direction of view</th>
<th>O.D.</th>
<th>Working length</th>
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<tbody>
<tr>
<td>7230 AS</td>
<td>4.8 x 6 mm</td>
<td>14 cm</td>
<td>28132 AA</td>
<td>0°</td>
<td>4 mm</td>
<td>18 cm</td>
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</tr>
<tr>
<td>7230 BS</td>
<td>4.8 x 6 mm</td>
<td>14 cm</td>
<td>28132 BA</td>
<td>30°</td>
<td>4 mm</td>
<td>18 cm</td>
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<tr>
<td>7230 CS</td>
<td>4.8 x 6 mm</td>
<td>14 cm</td>
<td>28132 CA</td>
<td>70°</td>
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<tr>
<td>7230 FS</td>
<td>4.8 x 6 mm</td>
<td>14 cm</td>
<td>28132 FA</td>
<td>45°</td>
<td>4 mm</td>
<td>18 cm</td>
<td></td>
</tr>
</tbody>
</table>
UNIDRIVE® NEURO

40 711701-1

UNIDRIVE® NEURO consisting of:

20 7117 20-1 UNIDRIVE® NEURO with KARL STORZ-SCB®, power supply:
100 – 120, 230 – 240 VAC, 50/60 Hz

400 A Mains Cord

20 0126 30 Two-Pedal Footswitch, two-stage, with proportional function

20 7116 40 Silicone Tubing Set, for irrigation, sterilizable

20 7116 21 Clip-Set, for use with Tubing Set 20 7116 40

20 0901 70 SCB Connecting Cable, length 100 cm

649700 GL Rapid Diamond Straight Shaft burr, with smooth shaft, with coarse grit diamond coating for precise drilling and abrasion without light hand pressure and generating minimal heat, length 12.5 cm, size 023 – 070, set of 9

649600 L Standard Straight Shaft Burr, stainless, length 12.5 cm, size 014 – 070, set of 11

649700 L Diamond Straight Shaft Burr, stainless, length 12.5 cm, set with 10 pieces, size 014 – 070

252479 INTRA Drill Handpiece, angled, extra long, 18 cm, for use with 12.5 cm long drills with long shaft, transmission 1:1 (40,000 rpm)
KARL STORZ XENON 300 Cold Light Fountain, with integrated KARL STORZ SCB, integrated anti-fog pump, one 300 W xenon lamp and one KARL STORZ light outlet, power supply: 100–125/220–240 VAC, 50/60 Hz consisting of:

- **201331 20-1** XENON 300
  - 400 A Mains Cord
  - 610 AFT Silicon Tubing Set, length 250 cm
  - 200901 70 SCB Connecting Cable, length 100 cm

- **201330 27** XENON Spare Lamp Module, 300 watt, 15 volt
- **201330 28** XENON Spare Lamp, only, 300 watts, 15 volt
Maximimum resolution and the consistent use of the 16:9 aspect ratio guarantee FULL HD
Endoscopic camera systems have to be equipped with three-CCD chips that support the 16:9 input format as well as capturing images with a resolution of 1920 x 1080 pixels

The benefits of High Definition Technology (HD) for medical applications are:
- Up to 6 times* higher input resolution of the camera delivers more detail and depth of focus
- Using 16:9 format during image acquisition enlarges the field of vision and supports ergonomic viewing
- The brilliance of color enables optimal diagnosis
- Lateral view is enhanced by 32% when the endoscope is withdrawn slightly, providing the same image enhancement as a standard system. Any vertical information loss is restored and the lens remains clean

SDI – Serial Digital Interface: optimized to display medical images on Flat Screens, Routing with OR1™ and digital recording with AIDA-DVD-M
ICM: USB-connector for recording video streams and stills on USB storage media or for connection of USB printers for direct printing of the recorded stills
**IMAGE 1™ HD**
HD camera head

**22220055-3**

**50 Hz**
**60 Hz**

**IMAGE 1™ H3-Z,**
Drei-Chip HD Kamerakopf

max. resolution 1920 x 1080 pixels, progressive scan, soakable, gas and plasmasterilizable, with integrated Parfocal Zoom Lens, focal length \( f = 15 \sim 31 \) mm (2x), 2 freely programmable camera head buttons, for use with color system PAL/NTSC

<table>
<thead>
<tr>
<th>Image sensor</th>
<th>3x ( \frac{1}{3} )” CCD-Chip</th>
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<tbody>
<tr>
<td>Pixel output signal H x V</td>
<td>1920 x 1080</td>
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<tr>
<td>Dimensions</td>
<td>Diameter 32-44 mm, length 114 mm</td>
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<tr>
<td>Weight</td>
<td>246 g</td>
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<tr>
<td>Min. sensitivity</td>
<td>F 1,4/1,17 Lux</td>
</tr>
<tr>
<td>Lens</td>
<td>Integrated Parfocal Zoom Lens, ( f = 15-31 ) mm</td>
</tr>
<tr>
<td>Grip mechanism</td>
<td>Standard eyepiece detector, non-detachable</td>
</tr>
<tr>
<td>Cable</td>
<td>300 cm</td>
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<tr>
<td>Cable length</td>
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</table>

**KARL STORZ**

**HD Flat Screens**

<table>
<thead>
<tr>
<th>Color systems</th>
<th>PAL/NTSC</th>
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</thead>
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<table>
<thead>
<tr>
<th>Version</th>
<th>Order No.</th>
<th>Screen diagonal</th>
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<tbody>
<tr>
<td>Wall mounted with VESA 100-adaption</td>
<td>9524 NB</td>
<td>24”</td>
</tr>
<tr>
<td>9526 NB</td>
<td>26”</td>
<td></td>
</tr>
<tr>
<td>Desktop with pedestal</td>
<td>9524 N</td>
<td>24”</td>
</tr>
<tr>
<td>9526 N</td>
<td>26”</td>
<td></td>
</tr>
</tbody>
</table>

Max. screen resolution 1920 x 1200

Video input

- Composite Video to BNC socket
- S-Video to 4-pin Mini Din socket
- SDi to BNC socket
- DVi to DVi-D socket

The following accessories are included:

- 400 A Mains Cord
- 9523 PS External 24VDC Power Supply
- 9419 NSF Pedestal
The Compact Documentation Solution

AIDA compact HD from KARL STORZ combines all the required functions for integrated and precise documentation of endoscopic procedures and open surgeries in a single system.

Data Acquisition

AIDA compact HD records still images, video sequences (in HD quality) and spoken comments of findings and intraoperative procedures directly from the sterile area. Recordings are activated via touch screen, voice control, footswitch or camera head buttons.

Live display of camera images on the touch screen enables immediate monitoring and selection of the recorded data.

Flexible Review

Before final archiving, the saved data can be viewed or listened to on the review screen. Data no longer required can be simply deleted.

Individual images, video and audio sequences can be renamed and given more meaningful names. A pre-defined selection list with key-words simplifies and speeds up data entry. Furthermore, a comment field is available for entering relevant details of an intervention.

A voice entry of the case report can even be recorded while viewing video and image files.

Automated Data Archiving

Once a treatment is completed, AIDA compact HD automatically stores the data on a DVD or CD-ROM, creates a standard report and prints it as an overview if required.

Multisession and Multipatient

Efficient data archiving is assured as several treatments can be saved on a DVD, CD-ROM or a USB stick.
Data Management and Documentation

KARL STORZ AIDA® compact HD

Special features:

- Digital storage of still images with a resolution of 1920 x 1080, video sequences in 720p and audio files
- Communication Package DICOM/HL7 (optional)
- Sterile, ergonomic operation via touch screen, voice control, camera head buttons and/or footswitch
- Automatic recognition of connected camera systems at HD-SDI/SD-SDI inputs (of IMAGE1™ camera systems at SD-SDI input only)
- Efficient archiving on DVD, CD-ROM or USB stick, multisession and multipatient
- Network storage possible
- Automatic creation of standard reports
- Computers and monitors for use in the OR area certified according to EN 60601-1
- Compatible with KARL STORZ Communication Bus (SCB) and OR1™ connect Serie

KARL STORZ AIDA® compact HD as an attractive, digital alternative to video printers, video recorders and dictating machines

200406 08U  KARL STORZ AIDA® compact HD System

Documentation system for digital storage of still images, video sequences and audio files, power supply: 115/230 VAC, 50/60 Hz consisting of:

200460 20  KARL STORZ AIDA® control II, with integrated DVD/CD writer
200405 77  AIDA compact II HD-Frame Grabber Card
200902 34U  PS/2 Compact Keyboard, English, with drape
200404 02-17  AIDA® compact II HD Software, with voice control and software protection
20040275  KARL STORZ USB Stick, with 2 GB
2x 202210 70  Connecting Cable
536 MK  BNC-Connecting Cable, length 180 cm
536 MKD  BNC-Connecting Cable, length 30 cm
200400 86  DVI-Connecting Cable, length 180 cm
400 A  Mains Cord
200400 87  MiniDIN Cable Plug, to BNC female

Specifications:

| Video Systems | - PAL | - NTSC |
| Signal Inputs | - S-Video (Y/C) | - Composite | - RGBS | - SDI | - HD-SDI | - DVI |
| Image Formats | - JPG | - BMP |
| Video Formats | - MPEG2 |
| Audio Formats | - WAV |
| Storage Media | - DVD+R | - DVD+RW | - DVD-R | - DVD-RW | - CD-R | - CD-RW | - USB stick |