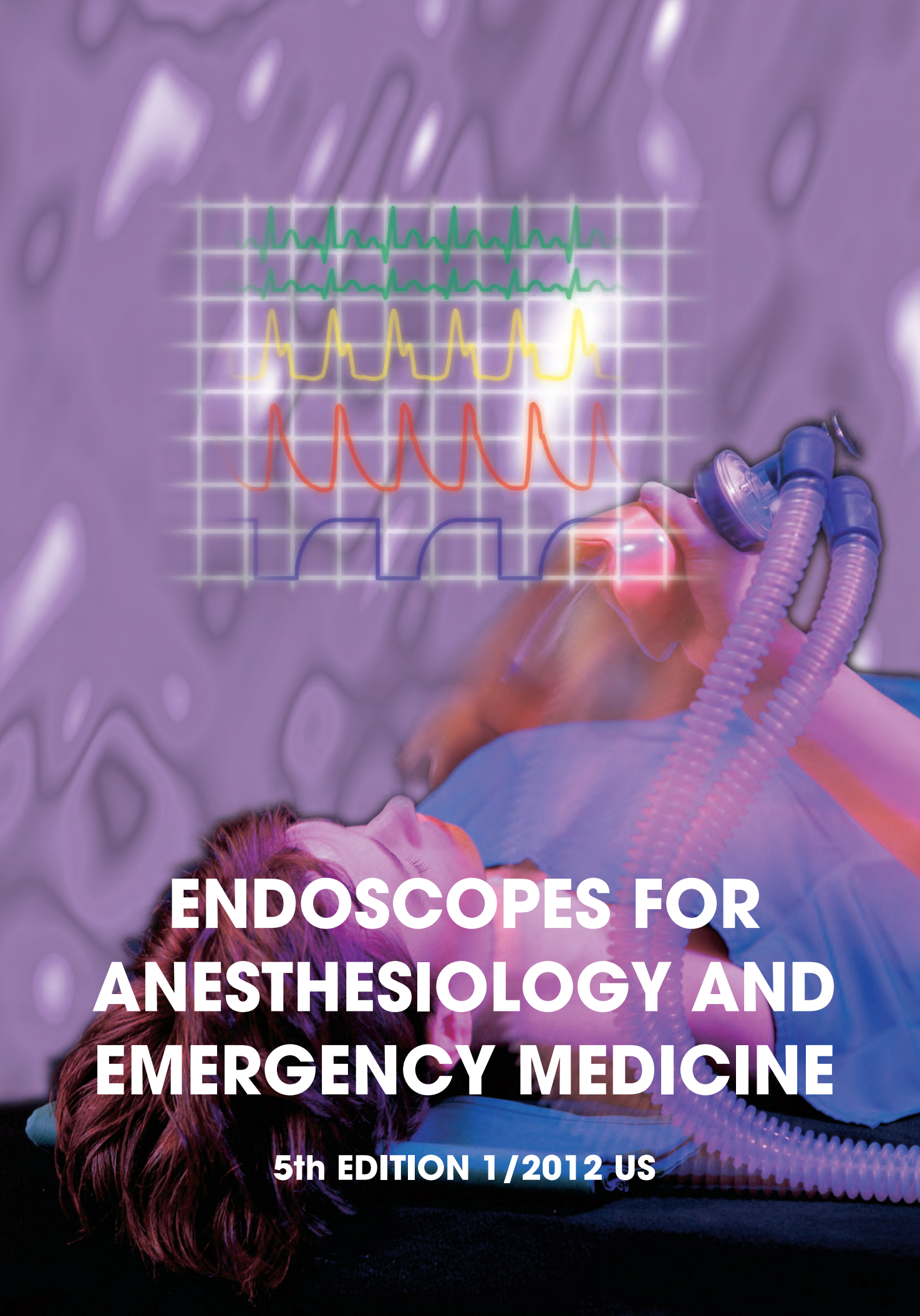

ENDOSCOPES FOR ANESTHESIOLOGY AND EMERGENCY MEDICINE

5th EDITION 1/2012 US

STORZ

THE WORLD OF ENDOSCOPY

ENDOSCOPES FOR ANESTHESIOLOGY AND EMERGENCY MEDICINE

5th EDITION 1/2012 US

Important information for U.S. customers

Note:
Certain devices and references made herein to specific indications of use may have not received clearance or approval by the United States Food and Drug Administration. Practitioners in the United States should first consult with their local KARL STORZ representative in order to ascertain product availability and specific labeling claims. Federal (USA) law restricts certain devices referenced herein to sale, distribution, and use by, or on the order of a physician, dentist, veterinarian, or other practitioner licensed by the law of the State in which she/he practices to use or order the use of the device.

Important Notes:

Endoscopes and accessories contained in this catalog have been designed in part with the cooperation of physicians and are manufactured by the KARL STORZ group. If subcontractors are hired to manufacture individual components, these are made according to proprietary KARL STORZ plans or drawings. Furthermore, these products are subject to strict quality and control guidelines of the KARL STORZ group. Both contractual and general legal provisions prohibit subcontractors from supplying components manufactured by order of KARL STORZ to competitors.

Any assumptions that competitors' endoscopes and accessories are acquired from the same suppliers as the KARL STORZ products are not correct. Moreover, endoscopes and instruments provided by competitors are not manufactured according to the design specifications of KARL STORZ. This means it cannot be assumed that these endoscopes and accessories – even if they look identical on the outside – are constructed in the same manner and have been tested according to the same criteria.

Standardized Design and Labeling

KARL STORZ participates both in national and international bodies involved in the development of standards for endoscopes and endoscopic accessories. Standardized design and development therefore have long been implemented consistently by KARL STORZ. The user can rest assured that all products by the KARL STORZ group have been designed and constructed not only in compliance with strict internal quality guidelines, but also with international standards. All data relevant for safe use, such as viewing direction, sizes and diameters, or notes regarding sterilization of telescopes, are applied to the instruments, have been formulated according to international standards, and therefore provide reliable information.

As we constantly seek to improve and modify our products, we reserve the right to make changes in design that vary from catalog descriptions.

Original or Counterfeit

KARL STORZ products are name brand articles renowned around the world and represent the state of the art in important areas of healthcare. A large number of "copy cat" products are currently being offered in many markets. These products are designed intentionally to resemble KARL STORZ products and use marketing strategies that at least point out their compatibility with KARL STORZ products. These products are by no means genuine products, since genuine KARL STORZ products are sold worldwide exclusively under the name of KARL STORZ, which appears on the packaging and the product. In the absence of such labeling, the product is not from KARL STORZ.

KARL STORZ, therefore, is unable to ensure that such products are actually compatible with genuine KARL STORZ products or can be used with them without injury to the patient.

8-12

KARL STORZ — ENDOSKOPE

TERMS AND CONDITIONS
KARL STORZ Endoscopy-America, Inc.

1. ORDERS
Orders are to be placed with the Customer Support Department of KARL STORZ Endoscopy-America, Inc. ("KSEA") or with its sales force. However, orders will only be accepted by KSEA's Customer Support Department in El Segundo, California and only on the condition that in the event of any conflicting, inconsistent and/or additional provisions in a Customer purchase order or other document, the within Terms and Conditions will supersede and prevail and such conflicting, inconsistent and/or additional provisions shall be of no force or effect; KSEA hereby objects to such other provisions or terms proposed by Customer By accepting delivery of products, and/or the performance of services, from KSEA, and/or by paying for same, Customer agrees that notwithstanding anything to the contrary in Customer's own purchase order or other document. Customer accepts and agrees to the within Terms and Conditions, all of which constitute the sole and entire Agreement of KSEA and Customer, unless and to the extent modified and/or superseded by an agreement in writing signed by both Customer and an authorized representative of KSEA.

2. PRICES
Prices are subject to change without notice. Nevertheless, prices in effect at the time that an order is accepted will prevail. Written quotations are valid for 60 days unless otherwise specified. All applicable taxes, as well as shipping and/or handling charges, will be added to the invoice.

3. TERMS
Shipments are F.O.B. shipping point, freight prepaid by KSEA and added to the invoice. Unless modified in writing, invoices are due and payable upon receipt; net 30 days. A finance charge may be assessed on all unpaid balances over 30 days equal to one and one-half percent (1-1/2%) per month, or the maximum amount allowed by law, whichever is less. Any and all collection expenses, including reasonable attorneys fees, which are incurred by KSEA to secure payment of any sums due from Customer and/or to effectuate repossession of products purchased from KSEA, but not paid for, will be borne by Customer. All controversies, disputes and claims, shall be adjudicated by a court of competent jurisdiction within the County of Los Angeles, State of California or the United States District Court, Central District of California, which courts shall have exclusive jurisdiction of such matters. All transactions by and between Customer and KSEA shall be governed by and construed in accordance with the laws of the State of California without regard to its conflict of laws principles. The invalidity or unenforceability of any of the within Terms and Conditions will not effect the validity or enforceability of any other or remaining Term or Condition hereof. The within Terms and Conditions apply to products that are supplied to Customer as samples or loans from KSEA. Amounts payable to KSEA for the purchase, lease, or rent of products and/or services are not subject to withholding, set-off, or counter-claim under any circumstances without prior written consent of KSEA.

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Until Customer has paid KSEA in full for all products purchased pursuant to an order, KSEA shall have, and Customer hereby grants to KSEA, a security interest in all products purchased, pursuant to such order, and in all proceeds therefrom (including that which Customer receives as payment from an insurer or third party for or as a result of any damage to or loss of said products), to secure payment of the entire purchase price for all products sold, shipped and delivered to Customer pursuant to such order, and to secure all costs, expenses or other charges relating thereto which are payable by Customer to KSEA. Customer is required to execute and deliver such documents, as required and requested by KSEA, to perfect KSEA's security interest(s).

5. SHIPPING
Although KARL STORZ products are carefully packed to minimize in-transit damage, all shipments should be carefully examined upon receipt and if a product is damaged, Customer must document the nature and extent of the damage and immediately contact KSEA. If concealed loss or damage is discovered, Customer must retain all packing materials and immediately notify KSEA, requesting an inspection. If shipments are received short, Customer must contact KSEA's Customer Support Department at once. KSEA reserves the right to make partial shipments on any Order. Invoices for partial shipments are payable upon receipt. KSEA is not liable for any damages caused by or attributable to delays and/or non-delivery due to any cause whatsoever.

6. RETURN POLICY
A return merchandise authorization (RMA) must be obtained from KSEA's Customer Support Department prior to returning any products. When phoning or writing KSEA, for an RMA, the Customer Support Representative must be provided with: (1) Customer name and number, as it appears on the invoice; (2) the telephone number and the person to contact; (3) the applicable P.O. number; (4) the KARL STORZ catalog number and, if applicable, the serial number for each product; and, (5) the reason for the return. KSEA reserves the right to refuse or return any products sent back to KSEA without prior authorization of its Customer Support Department. Returns must be carefully packed and shipped pre-paid to KSEA, attn: RMA number. KSEA's Customer Support Department will provide the return address and the RMA number. When returning products, Customer should include a copy of the original invoice or packing slip to ensure prompt issuing of credit. Full credit will only be issued for products that are returned within 30 days of invoice date and so long as such items are unused, in resalable condition and in their original product container. All products returned after 30 days from the date of invoice are subject to a 15% restocking fee. Shipping charges will be reimbursed, restocking fees will not be charged and full credit will be given if the return was due to an error on the part of KSEA. The following products may not be returned for credit or exchanged: (1) products held longer than 90 days from invoice date; (2) sterile packaged products where the package is opened and/or damaged; (3) discontinued products; (4) instruments that are etched or engraved by Customer; (5) products damaged by the Customer; (6) products purchased "as is" or as demo products; and, (7) used products. In order to prevent the transmission of disease to the medical facilities' and/or KSEA's personnel, all products must be cleaned and then sterilized and/or disinfected before sending such products back to KSEA, who reserves the right to return unclean and contaminated products to the Customer. Additionally, if any product becomes damaged and is not immediately returned, KSEA assumes no responsibility or liability for Customer's continued use of that damaged product. KSEA does not guarantee the performance, and may decline to repair or accept for repair/exchange, any product that has been repaired, modified and/or altered by any person or entity other than KSEA or an authorized repair facility of KSEA.

7. INSTALLATION, PREVENTATIVE MAINTENANCE, AND OTHER SERVICES
Subject to resource availability, KSEA may, in its sole discretion, (i) install and setup the product, perform preventative maintenance services, provide onsite or remote troubleshooting services and other services, (ii) provide software updates and (iii) provide loaners in case of back orders.

8. TRAINING
To the extent reasonable as to the complexity and quantity of products, KSEA will provide training regarding the proper use of products at or near the time of delivery or installation, as applicable. KSEA may also provide additional training regarding the proper use of products upon Customer's request, in KSEA's sole discretion and subject to availability of KSEA personnel.

9. REPAIR PROGRAM
If repairs become necessary, for other than damages incurred during initial shipment, the Customer must follow the RMA procedure set forth in the "Return Policy" in Section 6, above. Warranty repairs will be made without charge (see "Warranty Policy," Section 10 below, for covered repairs). All other repairs are subject to KSEA's applicable standard repair or exchange charges. If requested, Customer will be advised of the estimated cost of the repair work or a product exchange before it is undertaken. All repairs carry a 90 day warranty. Exchange products carry the applicable KARL STORZ product warranty. If the damaged product is not returned within thirty (30) days of receipt of the replacement product, Customer will be invoiced for the full list price of the replacement. Subject to the availability of product, KSEA may, in its sole discretion, provide Customer with loaner product while non-warranty repairs are being made. Subject to resource availability, KSEA may, in its sole discretion, perform minor non-warranty repairs without charge. KSEA reserves the right to refuse or return any product sent back without prior authorization of KSEA's Customer Support Department.

10. WARRANTY POLICY
Except as otherwise provided herein and/or by the applicable warranty information for a specific product or type of product, all products are generally warranted to be in good working order at the date of delivery and free from defects in workmanship and materials for one (1) year from date of delivery. However, since some products carry a shorter or a longer warranty period, Customer should check with KSEA's Customer Support Department or product specific literature, instruction manual and/or labeling for the exact warranty period. Any such product(s) with a defect occurring during the applicable warranty period will be promptly replaced or, at the sole discretion of KSEA, repaired at no charge to Customer. Subject to availability of product, KSEA may, in its sole discretion, provide Customer with loaner product while the defective product is being replaced or repaired during warranty period. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED AND/OR STATUTORY, INCLUDING, BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS AND/OR OF SUITABILITY FOR A PARTICULAR PURPOSE, WITH RESPECT TO ALL KARL STORZ PRODUCTS OR SERVICES. ANY AND ALL OTHER WARRANTIES, REPRESENTATIONS AND/OR GUARANTEES, OF ANY TYPE, NATURE OR EXTENT, BE IT IMPLIED, EXPRESS AND/OR WHETHER ARISING UNDER OR AS A RESULT OF ANY STATUTE, LAW, COMMERCIAL USAGE, CUSTOM, TRADE OR OTHERWISE, ARE HEREBY EXPRESSLY EXCLUDED AND DISCLAIMED. Any contrary course of performance by and between the parties will not modify any representations and/or warranties set forth herein. KSEA neither assumes nor authorizes any person to assume for it any other liabilities in conjunction with and/or related to the sale and/or use of its products. To ensure proper use, handling and care of KARL STORZ products, Customer should consult the product specific literature, instruction manual, and/or labeling included with the product or otherwise available. Repairs, modifications or alterations of KARL STORZ products, performed by any person or entity, other than by KSEA or an authorized repair facility of KSEA, nullifies and otherwise voids all applicable KARL STORZ warranties. Repair or replacement of a KARL STORZ product shall not extend the term of any applicable warranty. The remedies provided herein are Customer's exclusive remedies under this Warranty Policy.

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The dollar value of discounts and rebates (if any) provided by KSEA to Customer are intended to be discounts or reductions in price described in and in accordance with 42 U.S.C. Section 1320a-7b(b)(3)(A) and 42 C.F.R. Section 1001.952(h). Customer has an obligation to accurately record and may have an obligation to report all such reductions in purchase price to the Department of Health and Human Services ("DHHS") or other federal agency, state agencies, or other payers, as applicable. Customer acknowledges that this section is sufficient to effectively advise Customer of its obligations under applicable federal and state laws and regulations.

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US 5529570
8542 A, B, C, D
8542 AS, BS, CS, DS

US 6917738
11301 AA, AB, BN
11302 BD
11303 BD

US 6551239
11301 AAD, ABD, BND
11302 BDD
11303 BDD
11301 AA, AB, BN
11302 BD
11303 BD

US 6494826
11301 AAD, ABD, BND
11302 BDD
11303 BDD
10322 BD
10331 BD
11605 CV
8401 A, B, C, D, E, G, K

BASIC SETS

Basic Sets for Intubation

	Order No.	Standard Intubation							
		8535 B DÖRGES (CL)*	8401 AX BOEDEKER-DÖRGES C-MAC® Video Laryngoscope MAC #3	8401 BX BOEDEKER-DÖRGES C-MAC® Video Laryngoscope MAC #4	8401 HX C-MAC® Video Laryngoscope D-BLADE	8401 XDK C-MAC® Pocket Monitor, Set	8401 XDL Charging Unit, for C-MAC® Pocket Monitor	8401 YZ Protection Cap	8549 LDX Battery Insert Set LED
LIPP/GOLECKI **Airway Management Set**	11300 B3	–	–	–	–	–	–	–	–
Intubation Set -C22- ULM model	8400 B	●	●	●	●	●	●	●	●
Emergency Tracheoscope Set	10330 F	●	–	–	–	–	–	–	–

1-99$_6$

Instrument Cart see chapter 5

*** CL** = Cold Light

KARL STORZ — ENDOSKOPE

Difficult Intubation

8546/8546 A Handle, large (Xenon)	809020 MAGILL Forceps, 20 cm	809025 MAGILL Forceps, 25 cm	802700 YOUNG Tongue Seizing Forceps	11302 BD2 Fiberscope 3.7 x 65	10331 B Retromolar Endoscope	11301 D3 LED Battery Light Source	Laryngeal Masks and Laryngeal Tubes	Cricothyrotomy Set	Emergency Tracheoscopes	Suction Tubes, diameter 3 / 4 / 5.5 mm	Cases/Bags
–	–	●	–	●	●	●	●	●	–	–	27677 BK
●	–	–	–	–	–	–	–	–	–	–	8402 YE
● 2 x	●	●	●	–	–	–	–	–	●	●	27677 BH

1-99$_6$

LIPP/GOLECKI **Airway Management Set**

Basic Set

KARL STORZ — ENDOSKOPE

Recommended Set for Difficult and Standard Intubation

Both in intraclinical but in particular in preclinical emergency medicine, difficulties in securing the airways – whether expected or unexpected – always present situations an anesthetist or emergency physician would like to avoid, but cannot always prevent.

If intubation problems are foreseeable, an elective fiber optic intubation, preferably under topical anesthesia and light sedation should be regarded as the "gold standard."

If "cannot intubate" or even "cannot ventilate – cannot intubate" situations occur unexpectedly, fast and well-planned action becomes necessary in order to manage an acute life-threatening situation for the patient. Any person wanting to perform an intubation must be equipped to answer the question: "What do I do, if the intubation is unsuccessful?" Once the situation has occurred, there is no time for long considerations. For this reason, organizations such as the Amercian Society of Anesthesiologists (ASA) or European Resuscitation Council (ERC) developed algorithms for such situations that range from a procedure using modified laryngoscope blades, instruments such as the laryngeal tube or laryngeal mask to coniotomy, in order to enable the intubator to achieve the greatest benefit of his patients. The prerequisite for successful airway management is that the user has an advance plan for proceeding in case of difficulties; that he has both theoretical knowledge and practical experience in alternative techniques, and especially that these instruments also can be made available in a sufficiently short period of time. In the OR area, this problem can be handled relatively easily, but becomes already significantly more difficult for intubation problems in emergency patients on a ward. Under preclinical conditions, these problems are almost unmanageable.

This Airway Management Set was developed to provide the entire line of recommended instruments and equipment for expectedly and unexpectedly difficult airway management. With its relatively small dimensions, low weight and a LED battery-powered light source, this set can be used quickly and flexibly. In addition to flexible fiber optics, the BONFILS intubation endoscope, the laryngeal tube as well as standard and intubation laryngeal masks, this set also provides the user with instruments for a coniotomy. This means that especially in a preclinical situation, the user is able to quickly select and use an appropriate alternative after an unsuccessful laryngoscopical intubation.

Prof. Dr. Dr. med. W. LIPP, M.D., N. GOLECKI,
Johannes Gutenberg University Mainz,
Germany

Special features:

- **The set for all demands in Difficult Airway Management**
- **2 different intubation endoscopes**
- **5 different intubation laryngeal masks**
- **2 laryngeal tubes, size 3 and 4**
- **Instruments for cricothyrotomy**
- **LED battery light source allows operation without AC power connection**
- **Sturdy case**

11300 B3

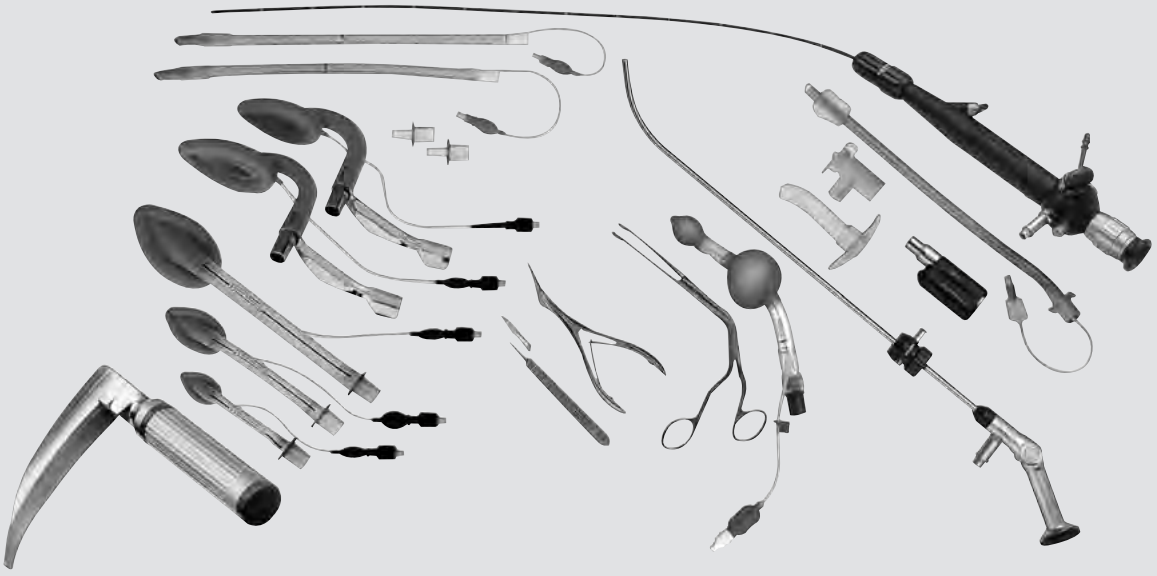
1-02₃

LIPP/GOLECKI **Airway Management Set**

Basic Set

KARL STORZ — ENDOSKOPE

Recommended Set for Difficult and Standard Intubation



11300 B3 LIPP/GOLECKI **Airway Management Set,** for the difficult airway including:
Intubation Fiberscope, 3.7 mm x 65 cm
BONFILS **Retromolar Intubation Endoscope,** 5 x 40, **autoclavable**
Battery Light Source LED for Endoscopes
Mask Adaption "MAINZ Adaptor", blue, package of 5
Laryngeal Tube, size 4
Laryngeal Tube, size 3
Spiral Tube, size 6, for single use
Bronchoscope Insertion Tube, size 4
Laryngeal Mask, standard, reusable, size 1
Laryngeal Mask, standard, reusable, size 2
Laryngeal Mask, standard, reusable, size 4
Intubation Laryngeal Mask, reusable, size 3
Intubation Laryngeal Mask, reusable, size 4
Laryngeal Mask Tube, diameter 7 mm
Laryngeal Mask Tube, diameter 7.5 mm
LMA Tube Stabilizer
MAGILL **Forceps,** length 25 cm
Scalpel, for single use, package of 10
COTTLE **Nasal Speculum,** blade length 55 mm, length 13 cm
DÖRGES **Emergency Laryngoscope Blade,** cold light, universal size
Handle Sleeve, ISO 7376
Battery Insert, with 2 Batteries 121306 S and Xenon Lamp 8546 XA
Case

1-024

For further product information see pages 32, 46, 51, 60 and 78-79
Instrument Carts see chapter 5
Components/Spare Parts see chapter 7

Intubation Set -C22-, ULM Model NEW

Basic Set

KARL STORZ — ENDOSKOPE

Video Laryngoscopy for the Preclinical Setting

"Difficult airways" are more prevalent in preclinical emergency medicine than in clinical anesthesiology due to several factors. In the past, attempts to optimize this situation often failed due to the limited technical resources available to emergency response physicians. Whereas it is possible to fall back on fiberoptic intubation in clinicial routine, this option is not available in the preclinical setting. Furthermore, the procedure does not work well due to the time constraints associated with emergency medicine.

Video laryngoscopy first offered anesthesiologists a new and promising procedure which quickly became viable for emergency response physicians. As blood and secretions in the pharynx may obstruct the telescope, conventional and direct laryngoscopy must be available as an option despite modern technology. One of the many distinguishing features of the C-MAC® video laryngoscope from KARL STORZ is the possibility to combine indirect, video laryngoscopic visualization with direct laryngoscopy via a standard MACINTOSH blade, without the need to change the laryngoscope.

Positive experiences with the C-MAC® in clinical settings quickly led to its use in emergency medicine. Transporting an additional monitor bag and problems positioning the monitor on or near the patient in the preclinical setting led to the further development of the C-MAC® to C-MAC® PM (Pocket Monitor) which features a high-contrast display directly at the laryngoscope handle.

C-MAC® PM is a standard laryngoscope on the CHRISTOPH 22 rescue helicopter in the meantime. Whereas intubation with the MACINTOSH blades 2, 3 and 4 are almost always successful, the use of a malleable intubation catheter is a useful aid for intubation with a curved D-BLADE. In addition to the MILLER blades in sizes 0 and 1, this tool is also included in the instrument set on the CHRISTOPH 22 helicopter.

The new, robust and water-resistant intubation bag -C22- offers clearly arranged storage for the C-MAC® PM in the emergency backpack. It also provides ample space for the aforementioned blades, a malleable intubation catheter, a set of tubes and fixing material.

Dr. B. HOSSFELD,
RTH CHRISTOPH 22, Ulm,
Germany

Special Features:

- **Recommended bag for storing the entire intubation equipment**
- **Recommended intubation set for routine and difficult intubation**
- **Recommended intubation set for preclinical intubation and mobile settings**
- **Suitable for direct and indirect intubation**
- **For video intubation and standard intubation**
- **Laryngoscopes can accommodate suction catheters, O_2 catheters or AINTREE catheters**
- **C-MAC® PM with OTI* display and rechargeable Li-ion batteries**
- **Daylight-readable monitor**
- **All video laryngoscope components are IPX8 certified and validated for manual/machine reprocessing up to 60°C as well as HLD**
- **"High-Power LED" standard laryngoscope available as an alternative**
- MAGILL **forceps**, **modified by** BOEDEKER, **for video-assisted foreign body removal**
- **Padded bag designed for difficult working and environmental conditions in preclinical settings**
- **Bag made from tear-resistant PAX material; washable inside and outside and suitable for wipe disinfection**

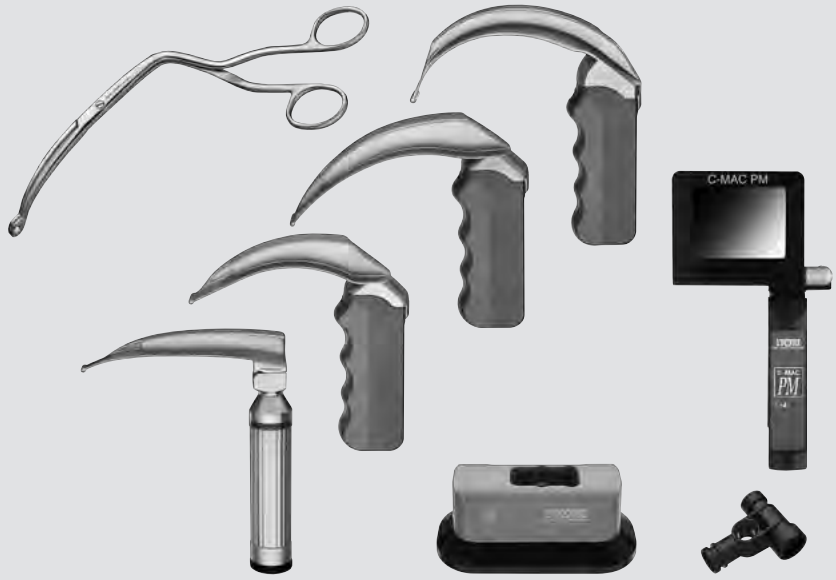
4-12

*"Open to intubate" without additional inconvenient switches or push buttons

Intubation Set -C22-, ULM Model NEW

Basic Set

KARL STORZ — ENDOSKOPE



8400 B	**Intubation Set -C22-,** ULM model including: BOEDEKER-DÖRGES **C-MAC® Video Laryngoscope,** MAC #3 BOEDEKER-DÖRGES **C-MAC® Video Laryngoscope,** MAC #4 **C-MAC® Video Laryngoscope D-BLADE** **C-MAC® Pocket Monitor Set** **Charging Unit,** for C-MAC® pocket monitor **Protective Cap** **Handle Sleeve,** ISO 7376 DÖRGES **Emergency Laryngoscope Blade,** cold light **Battery Insert Set LED,** with cap **Bag for Intubation Set -C22-,** ULM model MAGILL **Forceps,** modified by BOEDEKER
8402 YE	**Bag for Ulm Intubation Set -C22-,** made of water-resistant and sturdy material, washable, including two compartments with several holding facilities for C-MAC® video laryngoscope blades with C-MAC® pocket monitor and conventional laryngoscopes, for use with C-MAC® Pocket Monitor 8401 XD, C-MAC® video laryngoscopes and conventional laryngoscopes

For further product information see pages 23, 32, 84-85, 90
Please note: The displayed instruments are not included in Bag 8402 YE.
Components/Spare Parts see chapter 7

4-12

Emergency Tracheobronchoscopy Set

Basic Set

KARL STORZ — ENDOSKOPE

Recommended Set for Difficult and Standard Intubation

Content:

1. Laryngoscope with modified MACINTOSH blade No. 4 (suitable for pediatric use)
2. Ventilation tracheoscope with light source (handle) gauge/length 9 mm/25 cm, 7 mm/20 cm, 6 mm/30 cm, 5 mm/20 cm with variable add-on (viewing window, rubber cuff for rigid telescope, suction window)
3. MAGILL forceps, large and small
4. Tongue seizing forceps
5. Grasping forceps for peanuts and soft foreign objects, grasping forceps with pike mouth for foreign objects
6. 3 Suction tubes, usable length 35 cm and 50 cm, misc. thickness

Indications:

1. Planned use

a. Removal of foreign bodies (FB) in hypopharynx, laryngeal and trachea

b. Expected difficult intubation (see algorithm) in the presence of tumors in the area of the pharynx

c. Expected difficult intubation in the presence of tumors of the larynx and trachea

2. Unexpected Use

a. Unexpected difficult intubation in the presence of tumors in the laryngeal, hypopharynx or tongue area

b. Unexpected difficult intubation in the presence of swelling in the area of the larynx and upper trachea

c. Unexpected difficult intubation in the presence of abscesses in the area of the floor of the mouth

d. Unexpected difficult intubation in the presence of stenoses in the area of the laryngeal and upper trachea

Explanation:

Item 1a: In this situation, the planned use for removal of foreign bodies corresponds to the standardized procedure. The FB can be extracted with different grasping forceps. Depending on its location, the FB is visualized employing direct laryngoscopy using a MACINTOSH blade. If the FB is located below the glottis plane, the emergency tracheoscope is used. The latter also can be used for ventilation, if needed. The advantage of the modified MACINTOSH blade is its smaller width in the front part of the blade and the overall lower height and reduced curvature. This makes the blade usable for all ages (minimum weight: 22 lbs (10 kg)).

Items 1 b and c: On the basis of a correct preoperative diagnosis (indirect laryngoscopy or direct laryngoscopy with a fiberscope) and the possibility of mask ventilation, the intubation is performed with the emergency ventilation bronchoscope/tracheoscope after anesthesia has been initiated. This always requires that the mouth can be opened and that the cervical spine is normally movable. Passage through mouth/pharynx must be possible; although the space required for the emergency tracheoscope is rather small. Extremely protruding upper incisors may, however, impede or even prevent its use. If no mask ventilation appears possible, a tracheostoma should be placed under local anesthesia (planned procedure!).

Item 2: In the case of an unexpected difficult intubation, the emergency tracheoscope can be used very quickly, since no complex technical equipment is necessary. In contrast to the fiberscope, the rigidity enables both axial as well as, naturally, a significant tangential force to be exerted. At the same time, this is associated with a potential for injury that should not be underestimated.

Tumors can be pushed aside; swelling due to abscesses, stenoses and swelling in the laryngeal area and under the glottis also can be passed with measured force and under visualization. In the process, the different gauges and lengths of the shaft must be taken into account. If there is significant mucus, suction can be applied through the instrument. In case of hemorrhages, the limit of the use is reached when anatomical structures can no longer be recognized safely. It should be noted that with a very narrow viewing angle the field of view is significantly smaller than with a fiberscope or rigid HOPKINS® wide angle telescope.

Contraindications/Problems:

– Clamped jaw
– Fixed or injured cervical spine
– There is no safe aspiration protection because no blockage is possible.

1-02$_3$

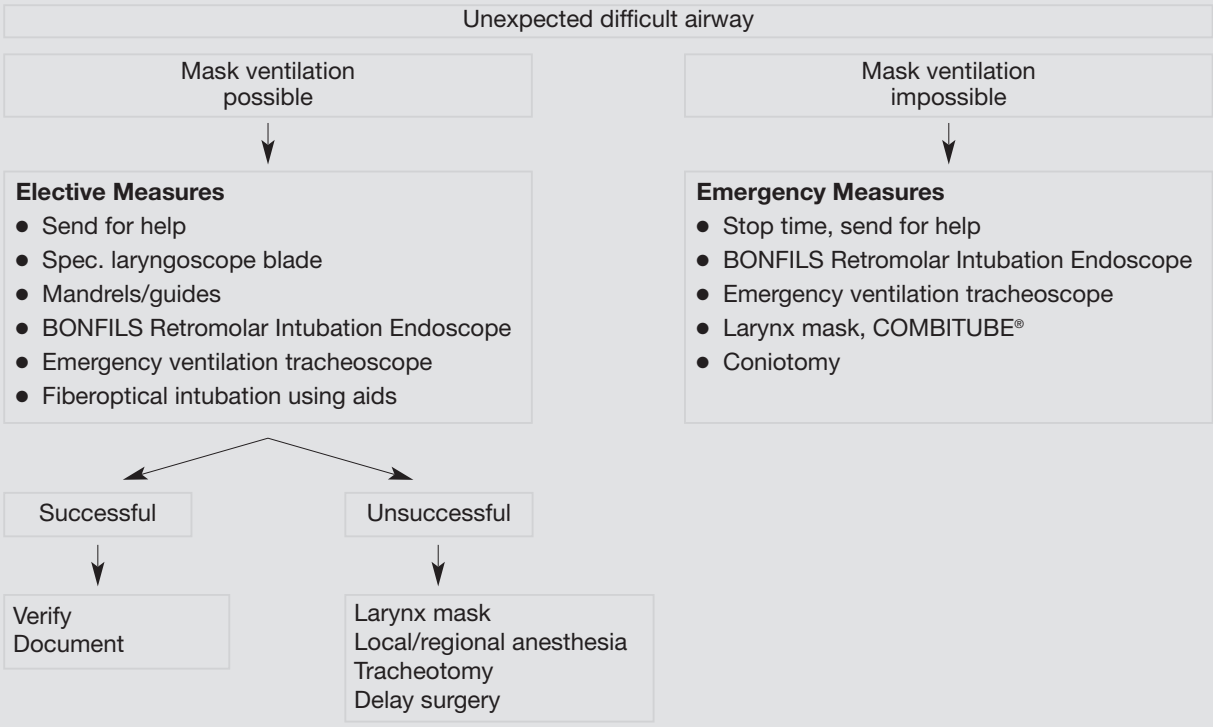
Emergency Tracheobronchoscopy Set

Basic Set

KARL STORZ — ENDOSKOPE

Recommended Set for Difficult and Standard Intubation

In general, the simplified algorithm for an unexpected difficult intubation is as follows (modified according to GEORGI et al, Katharinenhospital Stuttgart, Germany):



Explanation:

1. This algorithm only relates to the problem of the unexpected, difficult intubation. The plannable situation has been described above.

2a. If mask ventilation is adequate:

I Use of special laryngoscope blades (potentially permit intubation without direct visualization)

II BONFILS Retromolar Intubation Endoscope (intubation under direct visualization, directly achieves tube placement)

III Emergency tracheoscope, when glottis ostium cannot be clearly visualized (tumor or swelling), and head can be hyperextended. Ventilation possible via emergency tracheoscope. Then, either establishment of tracheostoma or re-intubation using a tube exchange catheter.[1)]

IV Fiberoptical intubation via MAINZ adaptor or endoscopy mask (intubation under direct visualization, achieves direct tube placement, but material- and personnel-intensive)

V Larynx mask or intubation larynx mask or COMBITUBE® (if problem is not on glottis plane and tube is not absolutely necessary. When using an intubation larynx mask, a blind intubation is also possible)

VI Operative airway under mask ventilation

2b. If mask ventilation is not adequate, the possible alternatives must be weighed very quickly.

I Larynx mask or intubation larynx mask or COMBITUBE® (if problem is not on glottis plane; achieves time savings, if it enables ventilation.)

II BONFILS Retromolar Intubation Endoscope (if laryngeal structure can be verified with direct laryngoscopy. Use possible very quickly, but only a conceivable alternative for experienced personnel).

III Emergency tracheoscope, when cause is in laryngeal area (tumor or swelling), and head can be hyperextended. Ventilation possible via emergency tracheoscope. Then, either establishment of tracheostoma or re-intubation using a tube exchange catheter [1)]

IV Emergency coniotomy

[1)] Please note:

This refers to unexpected difficult intubations only. An impossible passage of the mouth cavity therefore is of no concern, since it would have been foreseeable.

A. HENN-BEILHARZ, M. D.,
Katharinenhospital, Stuttgart,
Germany

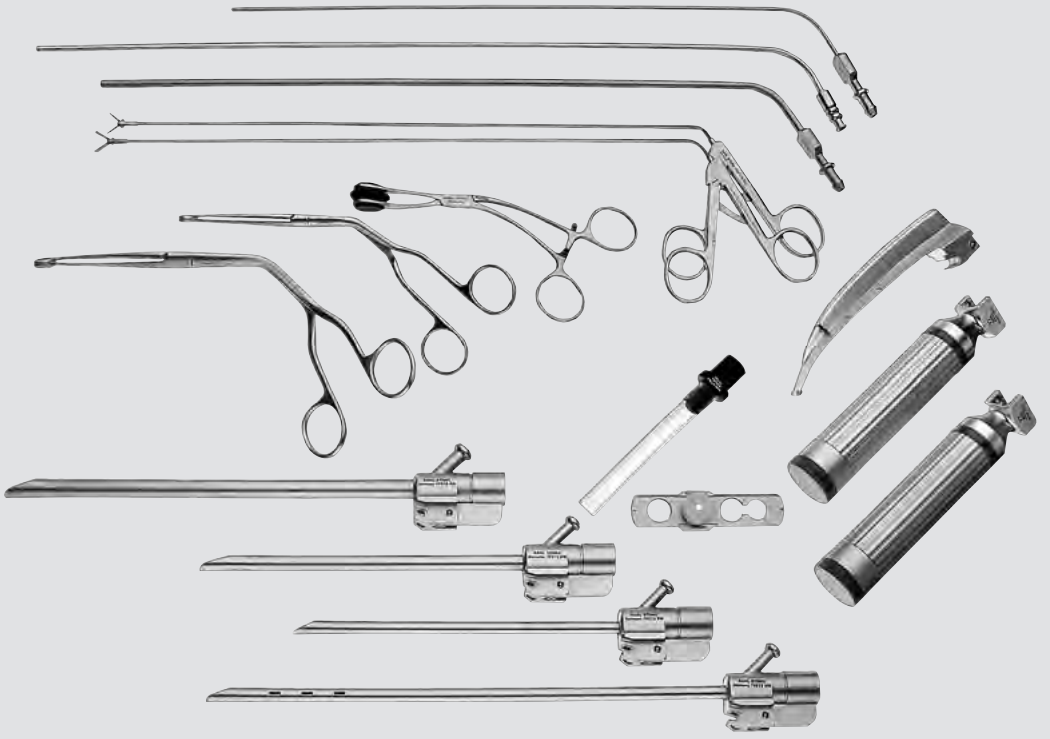
1-02$_3$

Emergency Tracheobronchoscopy Set

Basic Set

KARL STORZ — ENDOSKOPE

Recommended Set for Difficult and Standard Intubation



10330 F **Emergency Tracheoscope Set**
including:
Emergency Bronchoscope, size 6, length 30 cm
Emergency Tracheoscope, size 9, length 25 cm
Emergency Tracheoscope, size 7, length 20 cm
Emergency Tracheoscope, size 5, length 20 cm
FLUVOG **Adaptor**
Adaptor for Ventilation
DÖRGES **Emergency Laryngoscope Blade,** cold light, universal size
2x **Handle Sleeve,** ISO 7376
2x **Battery Insert,** with 2 Batteries 121306 S and Xenon Lamp 8546 XA
Xenon Lamp, package of 6
Forceps, for peanuts and soft foreign bodies
Forceps, alligator, for hard foreign bodies
MAGILL **Forceps,** length 20 cm
MAGILL **Forceps,** length 25 cm
YOUNG **Tongue Seizing Forceps**
Suction Tube, diameter 3 mm, length 35 cm
Suction Tube, diameter 4 mm, length 35 cm
Suction Tube, diameter 5.5 mm, length 35 cm
Case

1-02$_2$

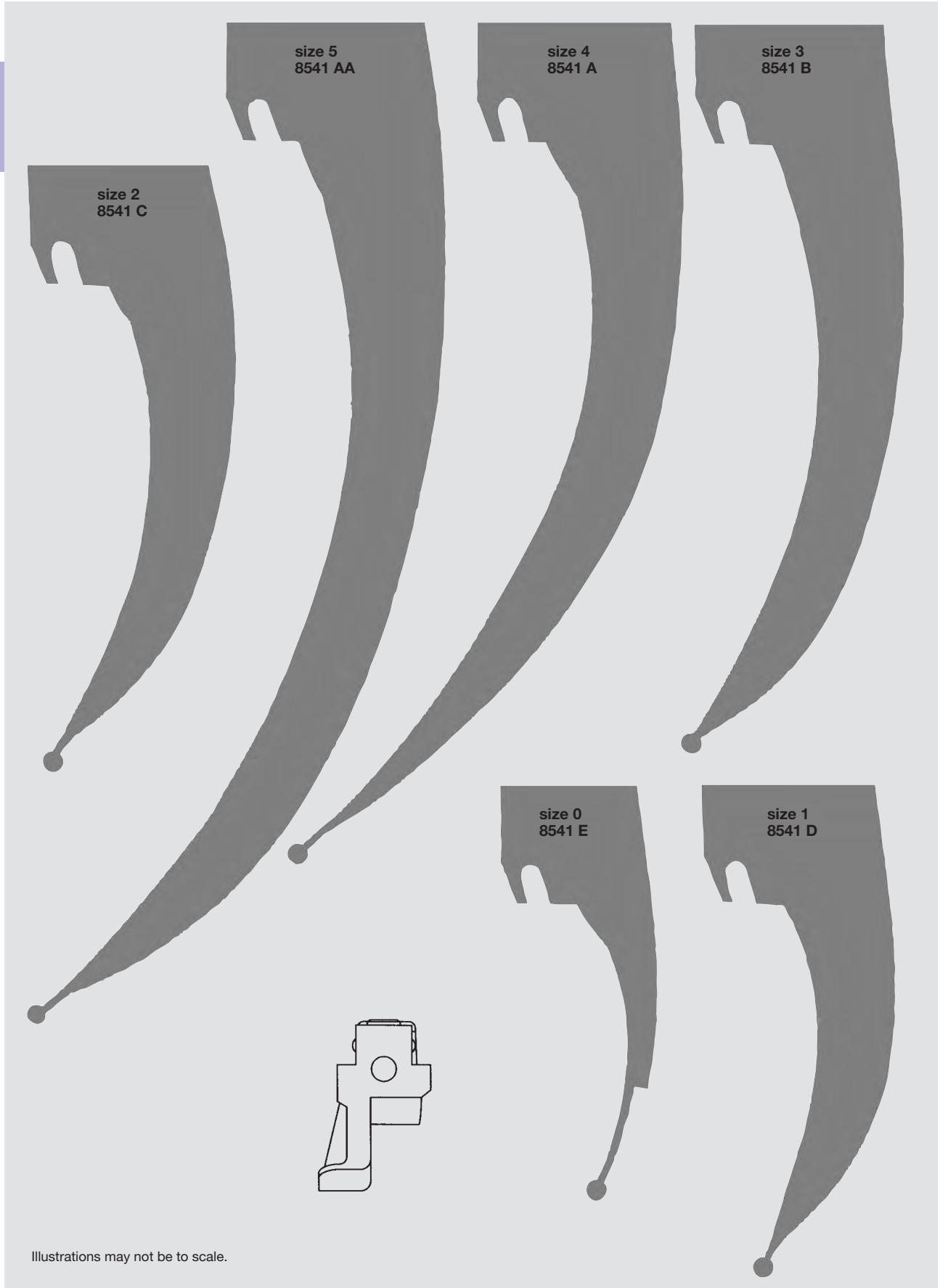
For further product information see pages 23, 29, 103, 108, 111, 114-115
Instrument Carts see chapter 5
Components/Spare Parts see chapter 7

LARYNGOSCOPE BLADES

MACINTOSH **Laryngoscope Blades**

Cold Light – Fiber Optic Light Carrier Incorporated

KARL STORZ — ENDOSKOPE

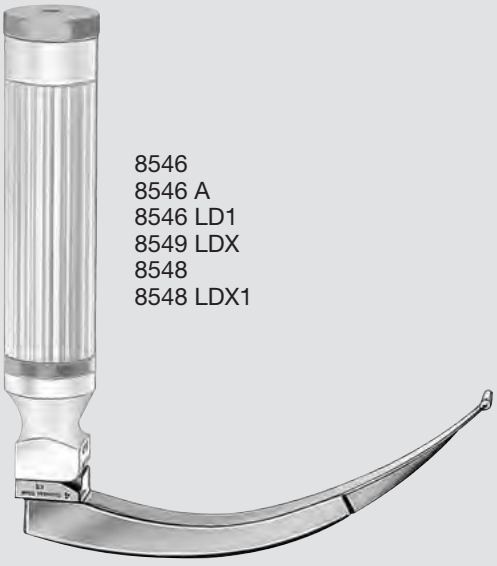


Illustrations may not be to scale.

8-12

MACINTOSH **Laryngoscope Blades**

Cold Light – Fiber Optic Light Carrier Incorporated



8546
8546 A
8546 LD1
8549 LDX
8548
8548 LDX1

8541 AA – E

Cold Light

8541 AA	MACINTOSH **Laryngoscope Blade,** size 5
8541 A	**Same,** size 4
8541 B	**Same,** size 3
8541 C	**Same,** size 2
8541 D	**Same,** size 1
8541 E	**Same,** size 0

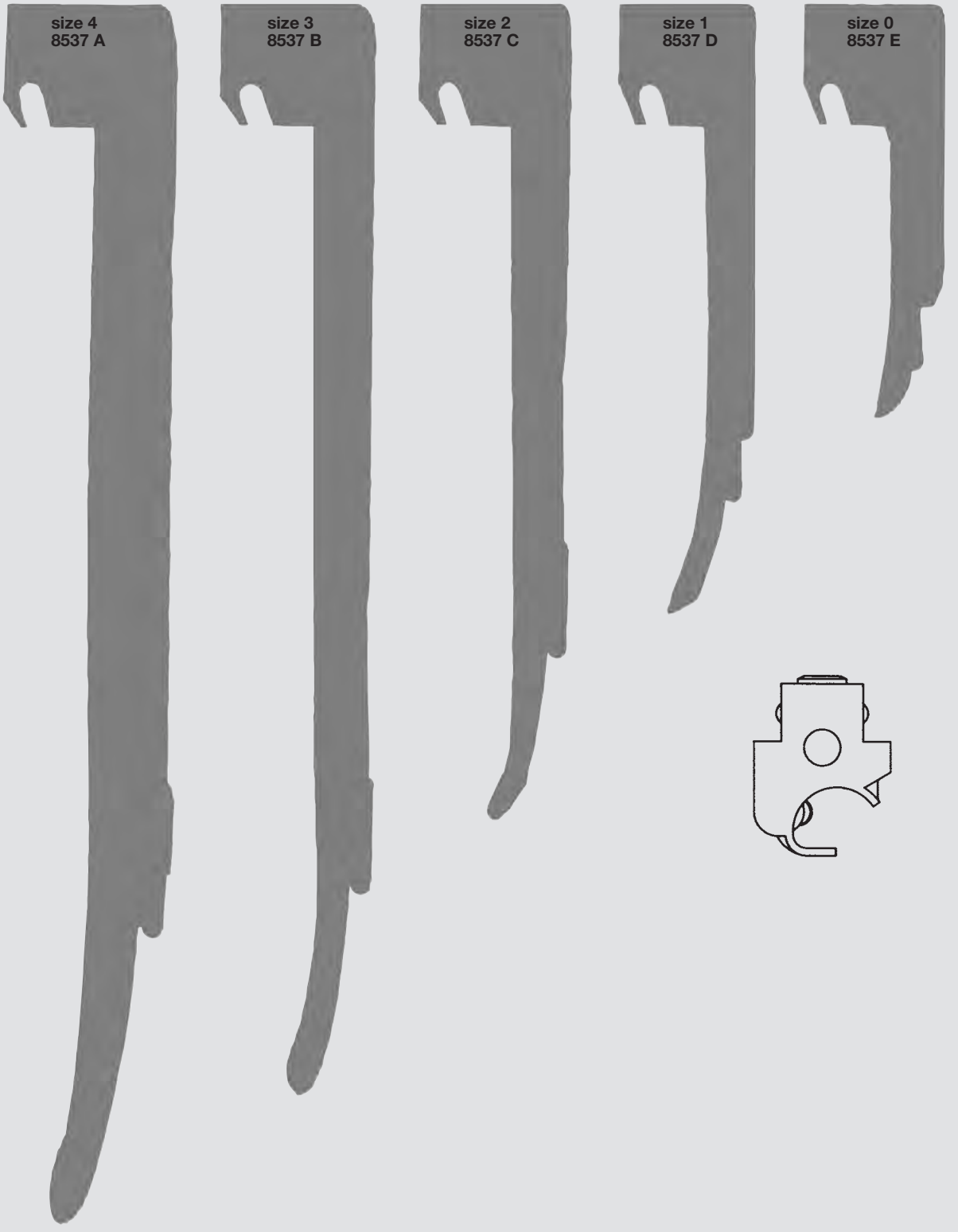
Handles 8546, 8547 and 8548
see pages 27-28

8-12

MILLER **Laryngoscope Blades**

Cold Light – Fiber Optic Light Carrier Incorporated

KARL STORZ — ENDOSKOPE



Illustrations may not be to scale.

8-12

MILLER **Laryngoscope Blades**

Cold Light – Fiber Optic Light Carrier Incorporated

8546
8546 A
8546 LD1
8549 LDX
8548
8548 LDX1

8537 A – E

Cold Light

8537 A	MILLER **Laryngoscope Blade,** size 4
8537 B	**Same,** size 3
8537 C	**Same,** size 2
8537 D	**Same,** size 1
8537 E	**Same,** size 0

Handles 8546, 8547 and 8548
see pages 27-28

8-12

PHILIPS **Laryngoscope Blades**

Cold Light – Fiber Optic Light Carrier Incorporated

KARL STORZ — ENDOSKOPE

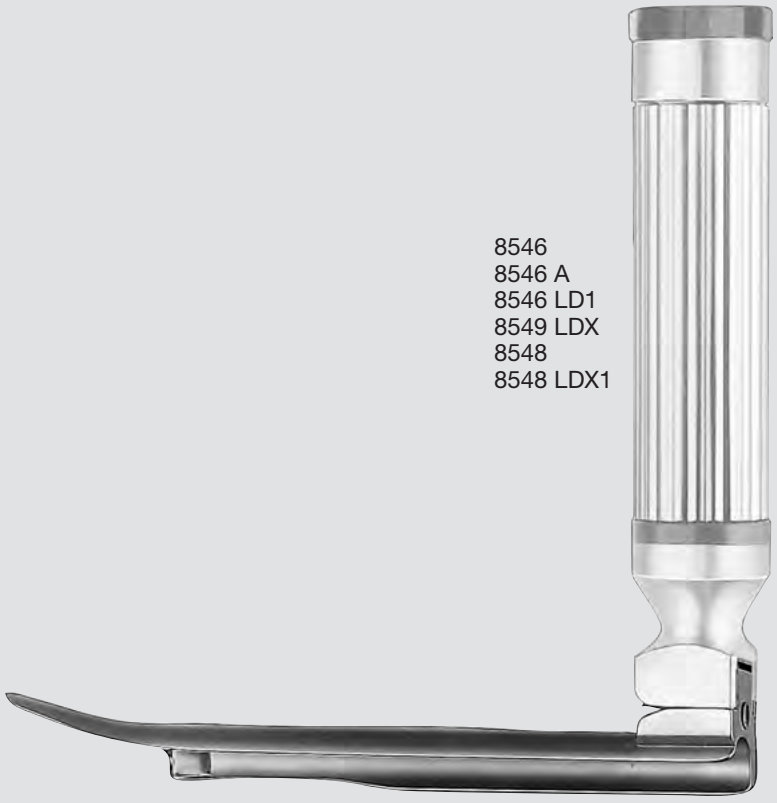
Illustrations may not be to scale.

8-12

PHILIPS **Laryngoscope Blades**

Cold Light – Fiber Optic Light Carrier Incorporated

8546
8546 A
8546 LD1
8549 LDX
8548
8548 LDX1



8535 C/CA

8535 C	PHILIPS **Laryngoscope Blade,** cold light, size 2
8535 CA	PHILIPS **Laryngoscope Blade,** cold light, size 1

Handles 8546 and 8548 see pages 27-28

8-12

DÖRGES **Laryngoscope Blades**

Cold Light – Fiber Optic Light Carrier Incorporated

The DÖRGES blade design allows it to replace the MACINTOSH laryngoscope blades, size 2 – 4, which are traditionally used. The working length of the blade is 120 mm, putting it exactly between the length of the MACINTOSH 3 and 4 to enable intubation under large anatomical conditions.

The blade tip has a width of 11 mm, corresponding to the MACINTOSH laryngoscope blade, size 2, allowing intubation of emergency patients from one year of age to adult. The tapered shape of the blade is especially helpful. Along with the required length, the blade also has the correct width for the respective age group.

An inadvertent introduction of the blade too deeply in the case of children is also prevented by 2 approximating, weight-calibrated markings on the front and rear of the blade. The blade is only slightly curved, especially in the front, making intubation of small children easier.

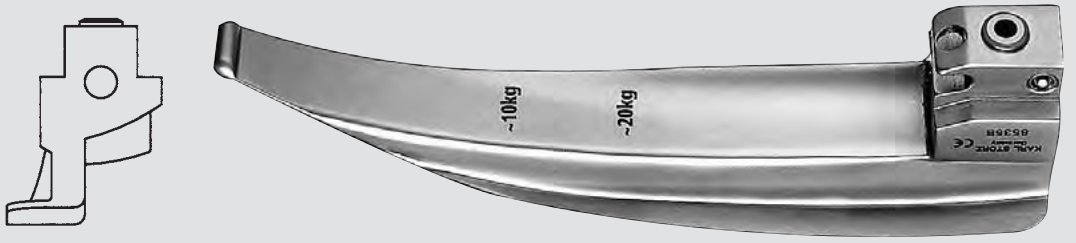
The tapering of the blade from 0° at the tip to 20° at the rear permits a better view when introducing the blade horizontally. Together with the very low height of 16 mm, this also facilitates rapid intubation in emergency situations and when the mouth opening is limited, as well as its low profile enables fast intubation in emergency situations and where the mouth opening is restricted, especially when performed by less practiced persons.

By limiting the selection to just two intubation blades, uncertainty about choosing the correct blade size under urgent treatment conditions is greatly diminished.

Prof. V. DÖRGES, M. D.
Universitätsklinikum Schleswig-Holstein, Campus Kiel
Klinik für Anästhesiologie und Operative Intensivmedizin
Kiel, Germany

Special Features:

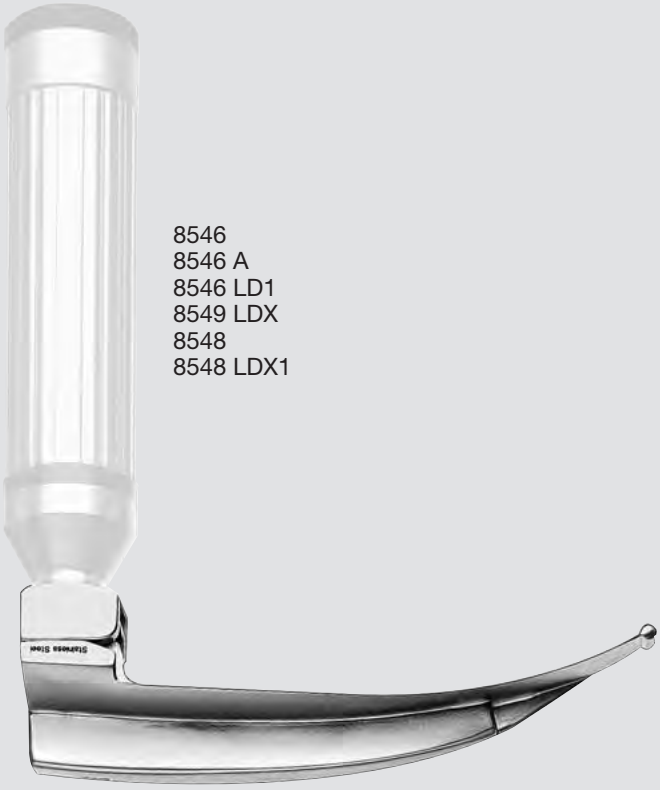
- **The special design of the blade makes it suitable for intubating small children, adolescents and adults.**
- **The thin front section makes this blade very suitable for ENT, e.g., constricted anatomical conditions due to hypertrophic tonsils.**
- **The overall low height of this blade permits easy intubation even when patients cannot open their mouth wide, e.g. in case of lockjaw or poor relaxation.**
- **Forward placement of the light outlet provides good illumination.**
- **Less space is required at the worksite with just one blade size (helpful for rescue services).**
- **Uniform blade sizes enable easier and standardized training, e.g. for emergency medical personnel.**



8535 B

8-12

DÖRGES **Emergency Laryngoscope Blades**



8546
8546 A
8546 LD1
8549 LDX
8548
8548 LDX1

8535 B

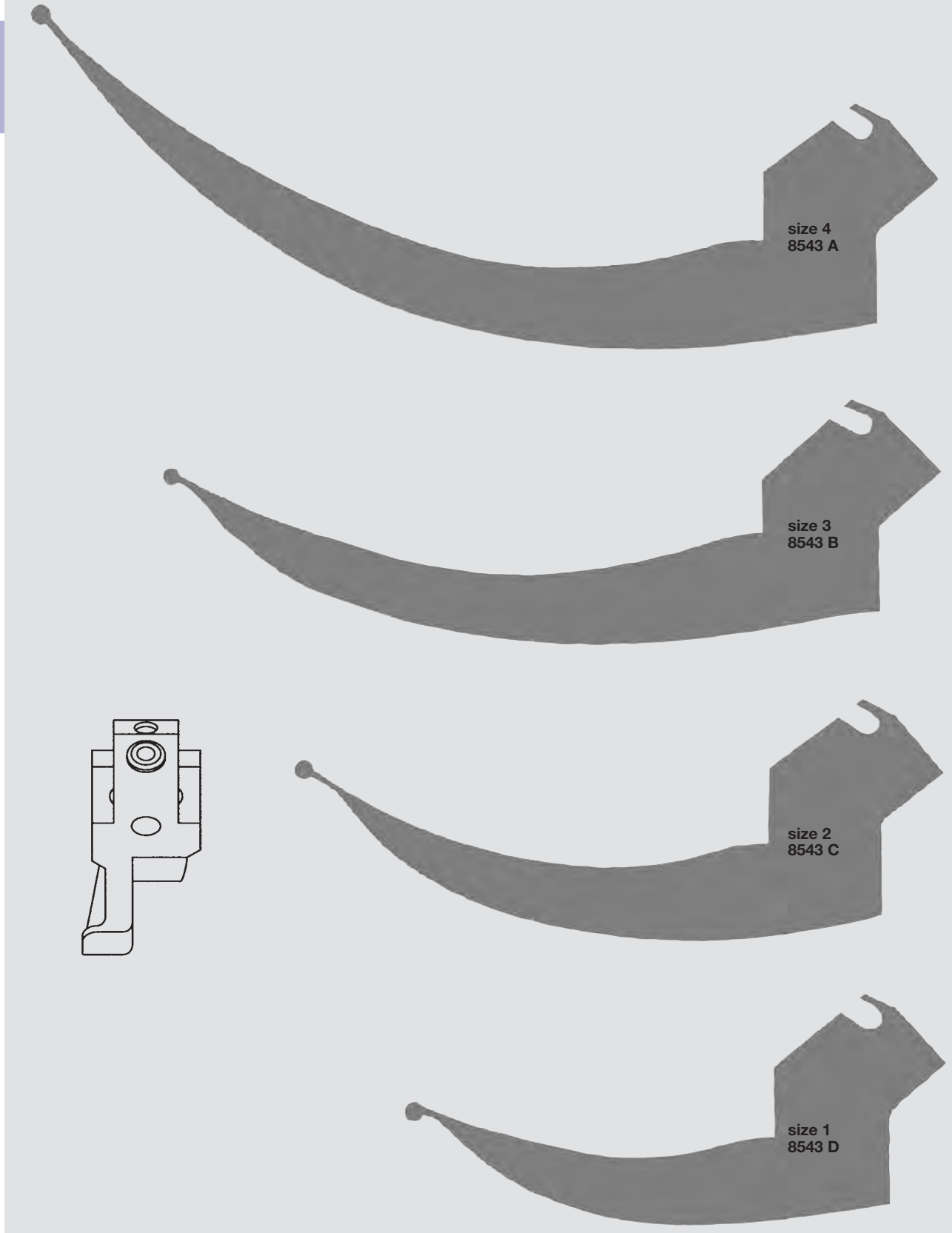
8535 B	DÖRGES **Emergency Laryngoscope Blade,** cold light, universal size

8-12

DÖRGES **Laryngoscope Blades** see page 18
Handles 8546 and 8548 see pages 27-28

MACINTOSH **Reclination Blades**

Shown Full Size



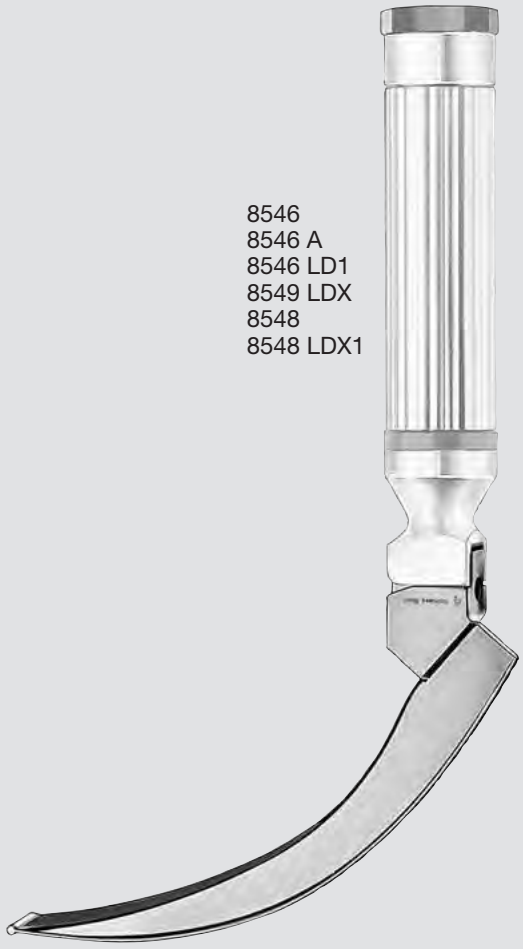
Illustrations may not be to scale.

8-12

MACINTOSH **Reclination Blades**

Cold Light – Fiber Optic Light Carrier Incorporated

8546
8546 A
8546 LD1
8549 LDX
8548
8548 LDX1



8543 A – D

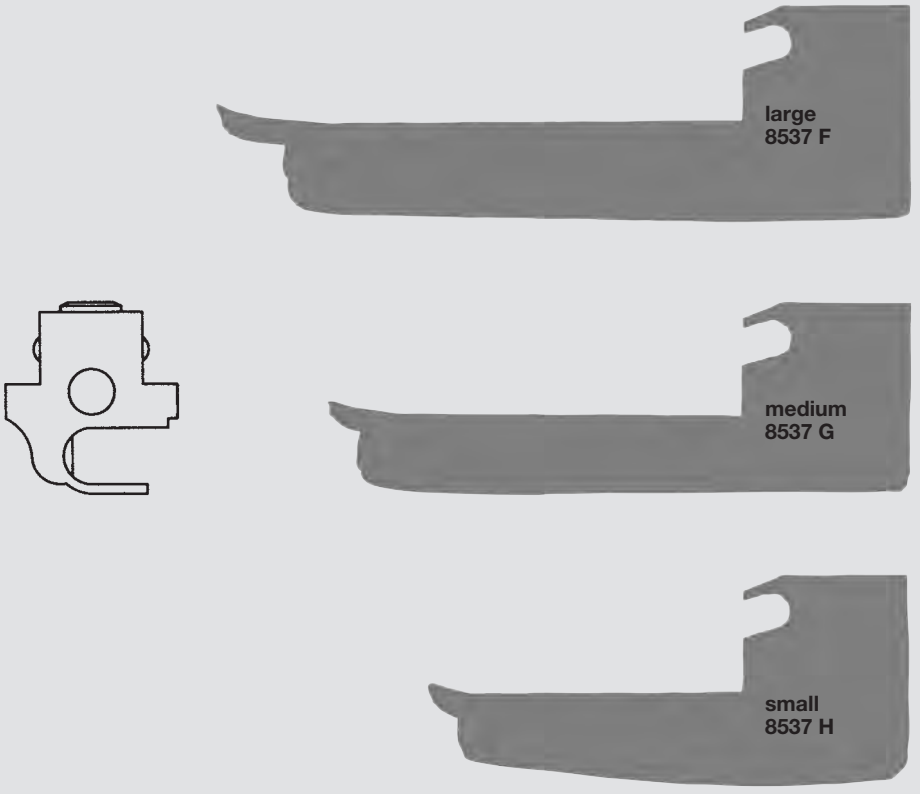
8543 A	MACINTOSH **Reclination Blade,** cold light, size 4
8543 B	**Same,** size 3
8543 C	**Same,** size 2
8543 D	**Same,** size 1

Handles 8546 and 8548 see pages 27-28

8-12

Laryngoscope Blades for Pediatrics

Cold Light – Fiber Optic Light Carrier Incorporated



Illustrations may not be to scale.

8-12

Laryngoscope Blades for Pediatrics

Cold Light – Fiber Optic Light Carrier Incorporated

8547
8547 A
8547 B

8537 F – H

8537 F	**Laryngoscope Blade for Pediatrics,** cold light, large
8537 G	**Same,** medium
8537 H	**Same,** small

Handle 8547 see page 28

8-12

KARL STORZ — ENDOSKOPE

- **Laryngoscope Blades, TAKE-APART®**

- MACINTOSH **Laryngoscope Blades**
- MILLER **Laryngoscope Blades**
- DÖRGES **Laryngoscope Blades**
- PHILIPS **Laryngoscope Blades**

- **LED Cold Light**
- **Xenon Cold Light**
- **Warm Light**

- **Handles, battery-powered**
- **Handles, rechargeable**

MACINTOSH **Laryngoscope Blades, Cold Light**
TAKE-APART® with replaceable fiber optic light carrier

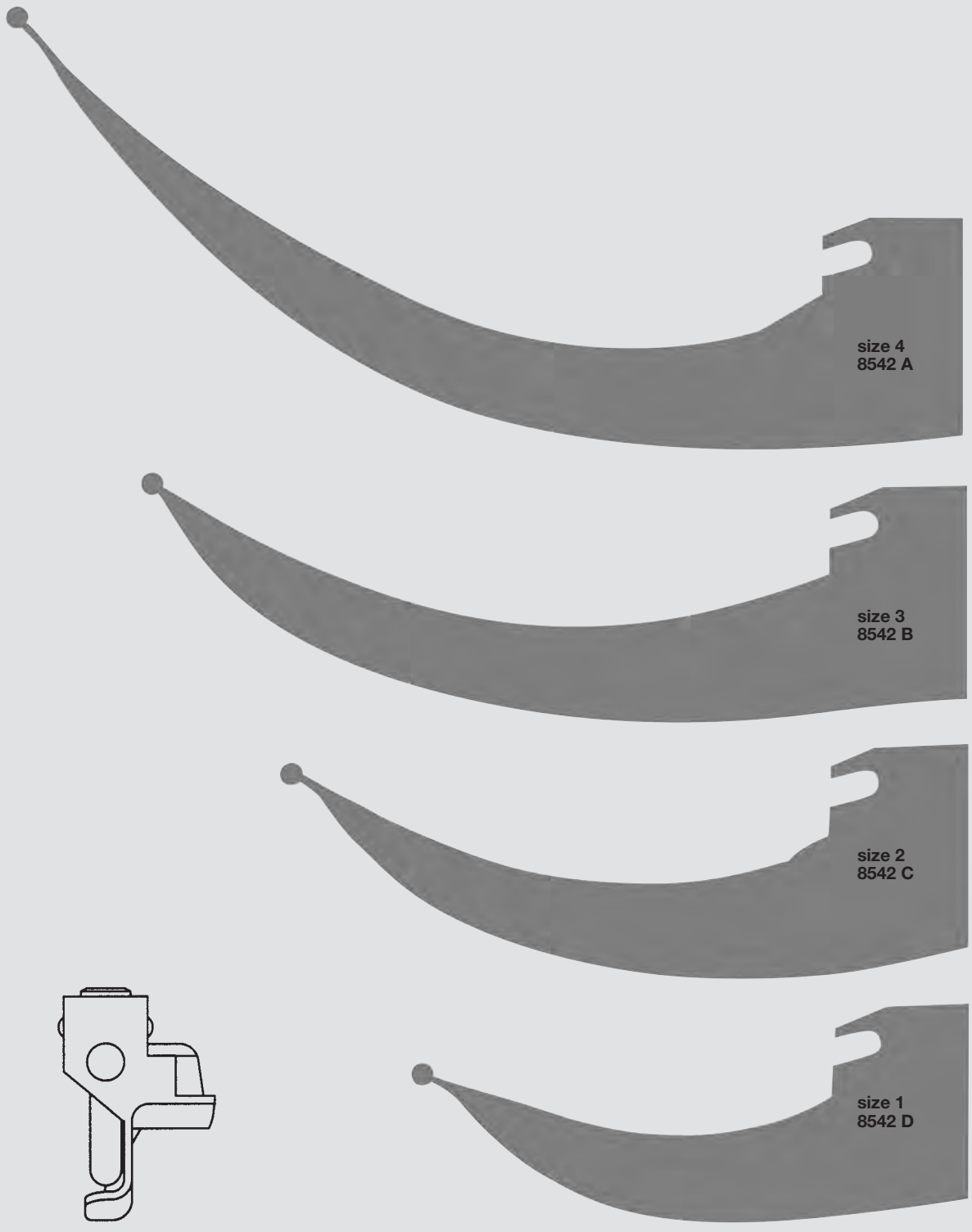
- **Optimum illumination due to new technology and increased number of fibers**
- **No trapped debris as laryngoscopes can be quickly and easily dismantled and reassembled**
- **Reduced and easy cleaning**
- **Cost-effective – fiber light carrier and source are easy to replace**

8-12

MACINTOSH **Laryngoscope Blades**

Cold Light – TAKE-APART® with Replaceable Fiber Optic Light Carrier

KARL STORZ — ENDOSKOPE

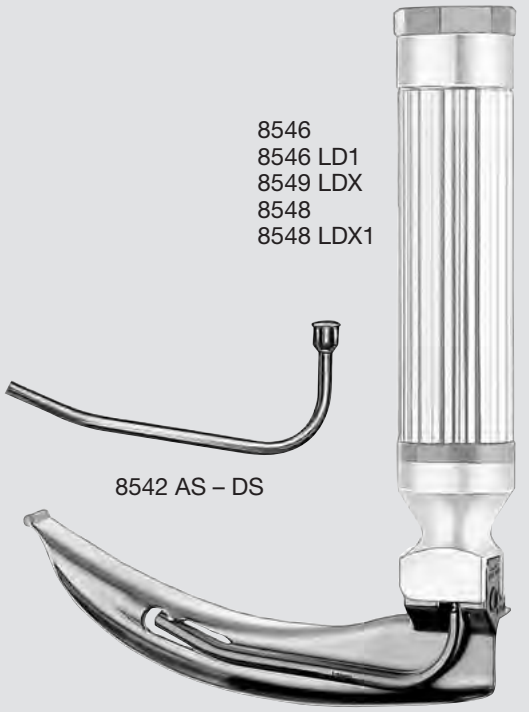


Illustrations may not be to scale.

8-12

MACINTOSH **Laryngoscope Blades**

Cold Light – TAKE-APART® with Replaceable Fiber Optic Light Carrier



8542 A	MACINTOSH **Laryngoscope Blade,** with replaceable fiber optic light carrier, size 4
8542 B	**Same,** size 3
8542 C	**Same,** size 2
8542 D	**Same,** size 1
8542 AS	**Spare Fiber Optic Light Carrier,** for 8542 A
8542 BS	**Same,** for 8542 B
8542 CS	**Same,** for 8542 C
8542 DS	**Same,** for 8542 D

Handles 8546, 8547 and 8548 see pages 27-28

8-12

Handles with LED Light Source

for Cold Light Laryngoscope Blades

KARL STORZ — ENDOSKOPE

Special Features:

- **Rechargeable lithium-ion batteries**
- **Extremely bright LED of more than 50 lm/> 100,000 LUX (100 klx)**
- **Absolute white light due to LED technology (5500 K) 100,000 LUX (100 klx)**
- **Small handle with photo battery**
- **Special lens system allows optimal light adjustment at the blade connector**
- **LED provides a lifetime of more than 50,000 hours**
- **Burning time up to 240 min at 100% brightness**
- **Charging via inductive technology**
- **ISO 7376 compatible**

8546

8546 LD1

8549 LDX

8548

8548 LDX1

	8546	**Handle Sleeve,** ISO 7376, **autoclavable,** length 12 cm, for use with Battery Inserts 8546 LD1, 8549 LDX and cold light laryngoscopes
	8546 LD1	**Battery Insert, rechargeable,** length 12 cm, for Handle Sleeve 8546, **with high-power LED,** 56 lm/> 100 klx, lithium-ion battery insert, burning time at 100% brightness 240 min, charging via Inductive Charging Unit 8546 LE (see page 29)
NEW	8549 LDX	**Battery Insert Set LED,** length 12 cm, for Handle Sleeve 8546 and cold light laryngoscopes, **with high-power LED,** > 56 lm/ >100 klx, burning time at 100% brightness > 120 min including: **Battery Insert,** high-power LED 2x **Alkaline "AA" Battery,** LR 06, 1.5 V **Cap**
	8548	**Handle Sleeve,** ISO 7376, length 6 cm, **autoclavable,** for use with Battery Insert Set 8548 LDX
	8548 LDX1	**Battery Insert Set,** length 6 cm, for Handle Sleeve 8548, **with high-power LED,** > 56 lm/> 100 klx, burning time at 100% brightness > 120 min including: **Battery Insert,** high-power LED **Photo Battery**, CR 123 A **Cap**

Components/Spare Parts see chapter 7

8-12

Handles with Xenon Light Source

for Cold Light Laryngoscope Blades

8546

8546 A

8546	**Handle Sleeve,** ISO 7376, **autoclavable,** length 12 cm, for use with Battery Inserts 8546 A, 8546 LD, 8549 LD and cold light laryngoscopes
8546 A	**Battery Insert,** length 12 cm, with 2 Batteries 121306 S and Xenon Lamp 8546 XA
121306 S	**Batteries,** Alkaline “C”, LR 14, for Battery Inserts 8546 A, package of 2
8546 XC	**Xenon Lamp,** 2.5 V, for Battery Inserts 8546 A, 8547 A and 8547 B, package of 6

Especially suitable for use with blades sizes 0 and 1

8547

8547 A

8547 B

8547	**Handle Sleeve,** ISO 7376, length 12 cm, **autoclavable,** for use with Battery Inserts 8547 A and 8547 B
8547 A	**Battery Insert,** length 12 cm, including 2 Batteries 121306 KS and Xenon Lamp 8546 XA
121306 KS	**Batteries,** Alkaline “AA”, LR 06, 2 Batteries 121306 K, for Battery Inserts 8547 A and Battery Insert Set High-Power LED 8549 LDX
8547 B	**Rechargeable Battery Insert,** length 12 cm, for Handle Sleeve 8547, with Xenon Lamp 8546 XA, charging via Inductive Charging Unit 8546 LE (see page 31)
8546 XC	**Xenon Lamp,** 2.5 V, for Battery Inserts 8546 A, 8547 A and 8547 B, package of 6

8-12

Inductive Battery Charger

for Rechargeable Laryngoscope Handles

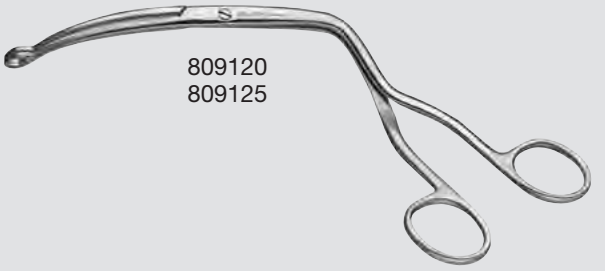
Special Features:

- **No open contacts**
- **No corrosion and contact problems**
- **No voltage peaks**
- **Batteries can be charged with or without handle sleeve, sterile packaging**
- **Compatible with previous models**

8546 LE

8546 LE	**Inductive Charging Unit,** for two battery inserts (8546 LD1, 8547 B), with fully integrated mains adaptor and power adaptor for EU, UK, USA and Australia, power supply 110 – 240 VAC, 50/60 Hz, **suitable for low level disinfection**
8546 R	**Reduction Sleeve,** for Battery Insert 8547 B
11301 DH	**Holder,** for Charging Units 11301 DG, 8546 LE and 8401 XDL

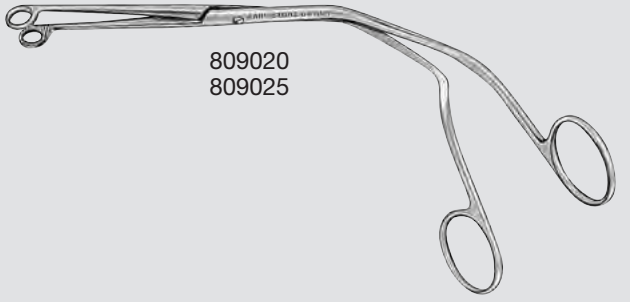
8-12



809120
809125

NEW 809120 MAGILL **Forceps,** for children, modified by BOEDEKER, length 20 cm, suitable for endoscopic foreign body removal, for use with video and standard laryngoscopes size 1 and 2

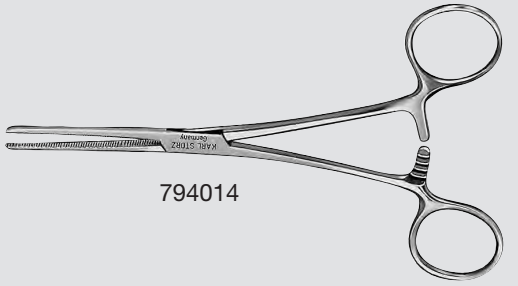
809125 MAGILL **Forceps,** modified by BOEDEKER, length 25 cm, suitable for endoscopic foreign body removal, for use with video and standard laryngoscopes size 2 – 4



809020
809025

809020 MAGILL **Forceps,** for the introduction of endotracheal tubes, for children, length 20 cm

809025 **Same,** for adults, length 25 cm



794014

794014 ROCHESTER-PEAN **Artery Forceps,** straight, length 14 cm

1-99$_3$

VIDEO INTUBATION SYSTEMS

KARL STORZ — ENDOSKOPE

Eyepiece

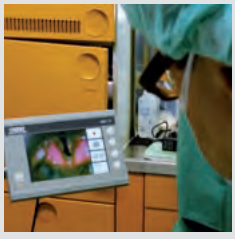
V-MAC®

C-MAC®

4-12

See the Difference

Successful airway intubation and management can quite literally make the difference between life and death. Video-assisted intubation gives the entire team a clear view of all important situations. KARL STORZ offers a whole range of tools that can minimize complications of managing difficult airways and at the same time provide optimal visualization.



Anesthesia/OR

Pre-operative, operative and post-operative procedures are performed in this area – the classical area for endotracheal intubation. Hence this area is predestined for the entire Airway Management system. A distinction is made between expected and unexpected difficult airways and solution approaches are defined accordingly in an algorithm. KARL STORZ offers a comprehensive product portfolio for these solution approaches.

Intensive Care Unit

This is the area of the hospital with the most patients on respirators. However, endotracheal intubation is seldom performed as most patients arrive already intubated. Endotracheal intubation or extubation, and possibly reintubation, pose a major challenge for the team. The patient is not in a suitable state for intubation and complications often arise. The patient may require an emergency tracheotomy. The product line from KARL STORZ offers a comprehensive range of solutions to meet these needs.

Emergency Room

As practically all emergency cases enter the clinic here, unexpected difficult intubations are likely in this area. The team on call may have little experience with emergency intubation. The C-MAC® video laryngoscope system can provide rapid assistance in such cases.

Rescue Services

Endotracheal intubation is seldom used in the field. An estimated 150 – 200 intubations a year are performed on German rescue helicopters; even fewer intubations are carried out by ground-based rescue services. However, out-of-hospital intubations constitute up to 50% of unexpected difficult airways. This is more often due to adverse conditions than to anatomic contraints of the patient. The C-MAC® video laryngoscope system offers valuable assistance in these circumstances. Its weatherproof, robust design is geared towards the preclinical setting.

Education and Training

Endotracheal intubation with a laryngoscope remains the gold standard in airway management. This is an essential skill for all anesthesiologists, intensive care/emergency physicians and other emergency medical personnel. Only modern video systems and original laryngoscopes guarantee success in learning. The C-MAC® video laryngoscope offers a professional system for this purpose.

7-05

Versatility

Airway management is not confined to a single hospital area. In ORs, emergency rooms, intensive care units through to preclinical emergency settings, medical practitioners are confronted with the challenges of a difficult airway. KARL STORZ offers mobile and optimum solutions for managing difficult airway situations wherever and whenever they occur.

All a Matter of Organization

Our videocart – ranging from the simplest IV stand through to the airway management cart – combines ergonomics with functionality. It is, therefore, customized to meet your specific requirements. Our airway trolley provides the optimal solution for your equipment for any algorithm regardless of its definition.

Optimal Visualization

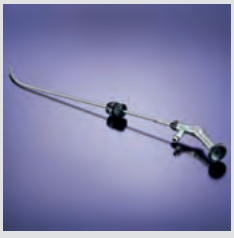
Video-assisted intubation using a laryngoscope offers tremendous advantages over conventional laryngoscopy. Indirect laryngoscopy widens the angle of view from approx. 10° to 80°. This factor alone enables most difficult intubation cases to be downgraded to standard intubation. The major advantage of the C-MAC® video laryngoscope is the fact that it allows optimal use of both direct and indirect larnygoscopy for teaching and training purposes or under critical lighting conditions.

For the Greatest Challenges

Spinal injuries, trauma patients, maxillofacial injuries – you can count on KARL STORZ to help you master the most difficult airway situations. We are the only company to offer such a comprehensive range of endoscopic solutions for difficult airway management.

Solutions to Meet your Needs

From the MACINTOSH laryngoscope to the MILLER laryngoscope through to the reclination laryngoscope or the DÖRGES emergency laryngoscope, KARL STORZ offers you a wide range of laryngoscopes. The main feature of these laryngoscopes, however, is the LED handle which offers unique benefits. All our laryngoscopes are, of course, compatible with DIN ISO 7376 standards.



The Clever Alternative for Experts

More durable than a flexible intubation fiberscope, the BONFILS intubation fiberscope offers a proven alternative for managing difficult airways. Portable, convenient to learn, and tube placement under full visualization are just some of the many benefits this fiberscope has to offer.

7-05₁

Tradition with a Future

From Video Laryngoscope to Video Laryngoscope System

2000

1st Generation:

KARL STORZ developed, in conjunction with Prof. ILIAS (Vienna, Austria), the first video laryngoscope for routine use in anesthesiology. This mobile instrument was equipped with the state-of-art TELE PACK monitor technology available at the time.

2001

2nd Generation:

The second model was developed in conjunction with Prof. BERCI/Dr. KAPLAN (Los Angeles, USA) and was equipped with MVM technology (Micro Video Module). This resulted in a smaller camera and, consequently, improved ease of use.

2003

3rd Generation:

V-MAC® – this innovative development employed DCI® technology (**D**irect **C**oupled **I**nterface) and enabled several instruments to be connected to a DCI® camera system via a one-chip camera head.

2008

4th Generation:

The latest generation of video laryngoscopes are equipped with a CMOS chip, LED and Li-Ion batteries. This makes the video laryngoscope more mobile and portable and allows more flexible use.

2012

C-MAC® as System

FIVE (flexible intubation video endoscope) can be directly connected to the C-MAC® monitor. This marks the beginning of a complete system for airway management.

4-12

From Larygoscopy to the C-MAC® System

The History of Endotracheal Intubation

500 B.C.

Hippocrates – 1st references to tracheotomy

1543

Andreas Vesalius performs the 1st endotracheal intubation on an animal and recognizes its use for humans.

1869

Friedrich Trendelenburg – performs the 1st human tracheotomy for the purpose of administering general anesthesia.

1878

John Knox McEwan performs the 1st orotracheal intubation.

1895

Alfred Kirstein performs the 1st laryngoscopy.

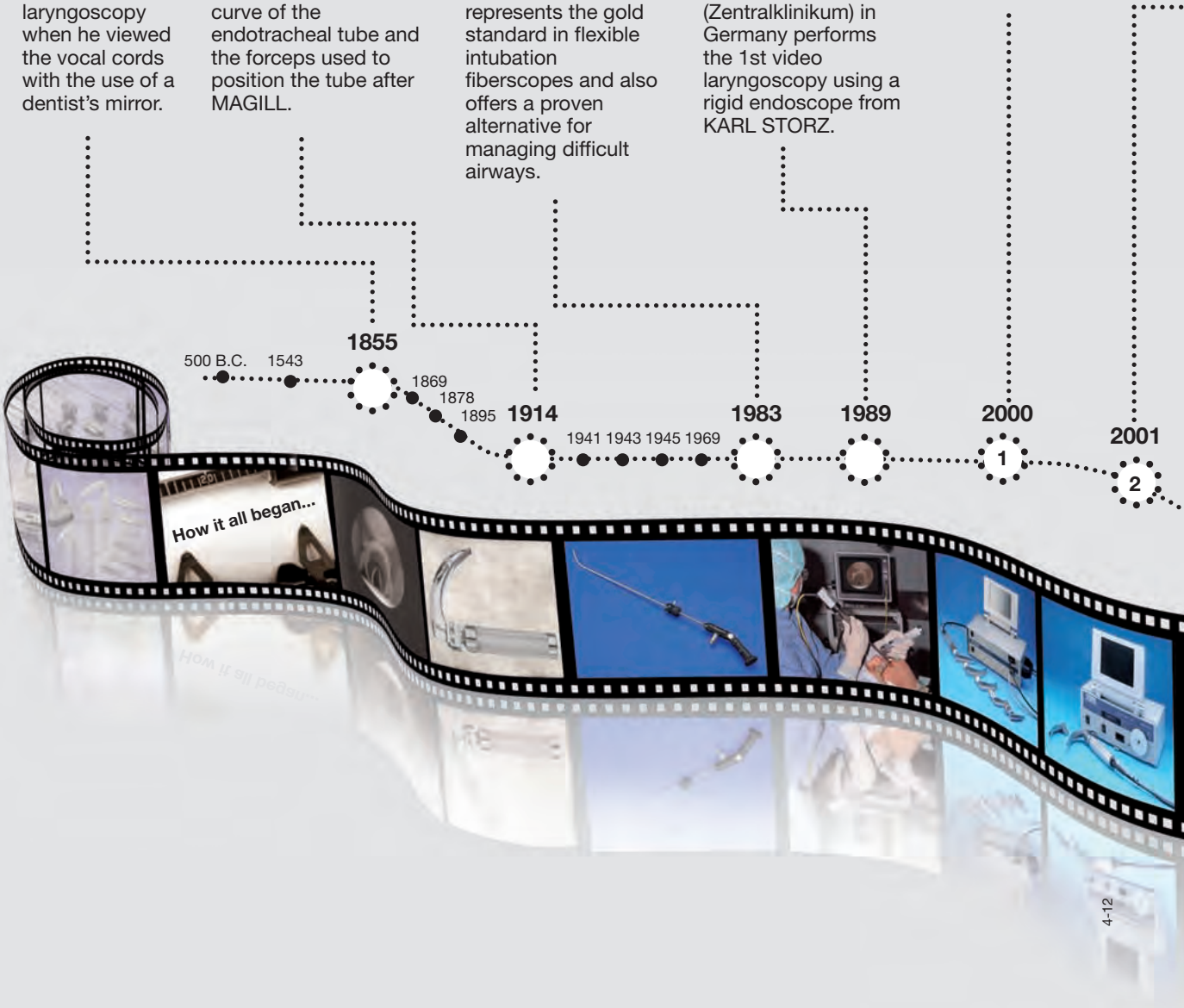
Manuel Garcia is generally regarded as a pioneer in laryngoscopy when he viewed the vocal cords with the use of a dentist's mirror.

Macintosh/Magill – the exchangeable blade is named after MACINTOSH; the curve of the endotracheal tube and the forceps used to position the tube after MAGILL.

The BONFILS **retromolar endoscope** from KARL STORZ represents the gold standard in flexible intubation fiberscopes and also offers a proven alternative for managing difficult airways.

Prof. Peter Bumm – Head of ENT at Augsburg Central Hospital (Zentralklinikum) in Germany performs the 1st video laryngoscopy using a rigid endoscope from KARL STORZ.

KARL STORZ develops the **1st video laryngoscope.**



1941
Robert Arden Miller invents the MILLER laryngoscope blade.

1943
Sir Robert Reynolds Macintosh invents the MACINTOSH laryngoscope blade.

1945
Karl Storz founds his company in Tuttlingen (Germany) at the age of 34.

1969
1st endoscopic camera from KARL STORZ (16 mm film).

Prof. Berci/Dr. Kaplan develops, in conjunction with KARL STORZ, the **2nd generation** of video laryngoscopes with MVM technology.

D-BLADE for C-MAC® – the revolutionary blade for the difficult airway.

V-MAC® – the **3rd generation** of video laryngoscopes with DCI® technology from KARL STORZ.

C-MAC® – the **4th generation** of video laryngoscopes, now equipped with CMOS technology from KARL STORZ.

MILLER for C-MAC® – for pediatrics and neonatology. C-CAM™ for C-MAC® – a complete system unit for complete airway management.

FIVE (Flexible Intubation Video Endoscope) for C-MAC®.

2003 **2008** **2010** **2011** **2012**

3 4

Ever since the introduction of the laryngoscope to clinical practice in anesthesiology, attempts have been made to optimize the shape of the laryngoscope blade. These innovations aim to achieve better visualization of the laryngeal structure and to improve the success rate of endotracheal intubation. Despite these modifications, tracheal intubation is not always successful, even in the case of patients having anatomical conditions where intubation is thought unlikely to be difficult.

According to our estimates, endotracheal intubation is performed on approx. 10 million patients in the US each year, 80% of which undergo direct laryngoscopy with transoral positioning of the endotracheal tube (ETT) in the trachea. An estimated 3% or 240,000 cases annually in the US encounter unexpected difficult intubation, a decisive factor being the poor visualization of the laryngeal structure.

The shape of the V-MAC® video laryngoscope optimizes visualization as it provides the user with an enlarged video image of the airway. In conventional laryngoscopy, the anesthesiologist views the airway through a “keyhole” which becomes even narrower when attempts are made to advance the endotracheal tube.

The V-MAC® video laryngoscope consists of a laryngoscope handle with an inbuilt standard MACINTOSH Blade, sizes 2, 3 and 4, the D-BLADE as well as a DÖRGES blade and MILLER sizes 0 and 1. The video laryngoscope is thus modified so that a video image of the airway structure is projected onto a video monitor, e.g., TELE PACK X. A DCI® camera (**D**irect **C**oupled **I**nterface) can be simply and quickly incorporated into the modified handle. In our experience, learning to handle the instrument is very easy as most anesthesiologists are already familiar with the MACINTOSH blade.

Video imaging has several distinct advantages for direct laryngoscopy. The system generates very clear video images which can be enlarged on the video monitor for better visual control. Should endotracheal larynx manipulation (ELM) be necessary to improve the view of the larnygeal structure, the anesthesiologist and the assistant are able to coordinate their movements because they can both observe the monitor at the same time. As the video images are projected from the distal end of the laryngoscope blade, this enables a view of the laryngeal structure when the endotracheal tube (ETT) is advanced from the oropharynx to the trachea.

Intubation with the DCI® video laryngoscope
Photo: Villingen-Schwenningen Clinic, Germany

7-05₂

We also found the V-MAC® video laryngoscope to be useful in thoracic cases where a double lumen tube (DLT) is first inserted under full visual control. Following a rapid changeover from the V-MAC® video laryngoscope to the flexible intubation fiberscope, the position of the double lumen tube (DLT) is checked and, after the patient is placed in the lateral position, is checked once more.

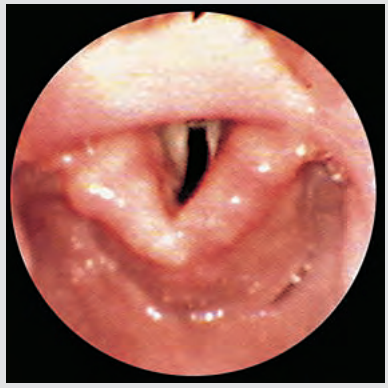
In the case of difficult intubation, CORMACK & LEHANE Grade 3 patients can be downgraded to C & L 2 before intubation.

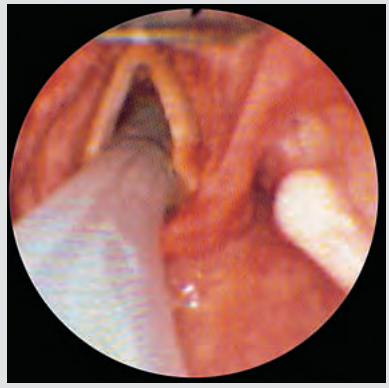
Situations arise when a less experienced intubator has to perform Crash-/Rapid Sequence Intubation. Emergency rooms and intensive care units, which are often located away from the OR tracts for logistical reasons, serve as a good example. Any improved (laryngoscopic) visualization technique which can be applied in a life-threatening situation is invaluable to the user and patient.

The V-MAC® video laryngoscope is an excellent instruction tool for training anesthesiologists and other practitioners who need to learn the principles of intubation.

The V-MAC® video laryngoscope has many diverse applications. We believe it will fill an important niche in teaching aids. Due to its improved visual control, the number of unsuccessful intubations and, hence the incidence of tissue trauma relating to intubation, will be decreased.

Dr. M. KAPLAN, Los Angeles, USA
Prof. Dr. D. WARD, Rochester, USA
Prof. Dr. G. BERCI, Los Angeles, USA





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Benefits of Video Laryngoscopy

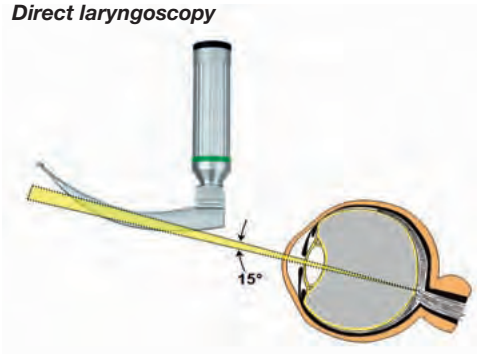
Intubation via direct laryngoscopy provides the user with an angle of view of approx. 10° – 15°. The special camera technology of the video laryngoscope directs the observer's eye to the blade tip, providing an angle of view of approx. 60° – 80°. This principle of video laryngoscopy offers the user a more detailed larnygeal view which greatly increases patient safety. Improved visualization of the video laryngoscope means that the instrument exerts considerably less force on the patient's jaw. In conjunction with the special teeth protector on KARL STORZ video laryngoscopes, this greatly reduces the risk of dental damage resulting from intubation.

Not only does the video laryngoscope from KARL STORZ provide a decisive advantage for daily use and difficult airway management, it is also a very effective teaching tool for novices. The trainee can observe the entire procedure for securing the airway on the monitor and not over the shoulder of the instructor – with little success – as is the case in direct laryngoscopy or intubation. It also enables the instructor to supervise the trainee at each step and, if necessary, offer more appropriate help.

The acquisition of still images and video sequences for laryngoscopy and intubation has been further simplified and can be controlled with buttons on the laryngoscope handle and on the monitor. This data is ideally suited for training and documentation purposes, especially in the case of difficult intubation.

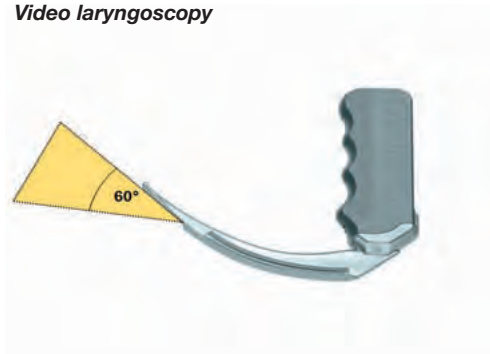
Based on 65 years of experience in endoscopy and 15 years of experience in the field of video laryngoscopy, the new C-MAC® video laryngoscope from KARL STORZ combines various technical disciplines.

Direct laryngoscopy



standard angle of view approx. 15°

Video laryngoscopy



enlarged view approx. 60°

4-12

Great attention has been paid to actual market requirements such as hygiene, mobility, universal use and robustness in the process.

As a result, the system is suitable for routine clinical procedures in the OR, intensive care medicine and emergency hospitalization, as well as preclinical procedures using ground or air-based life-saving equipment.

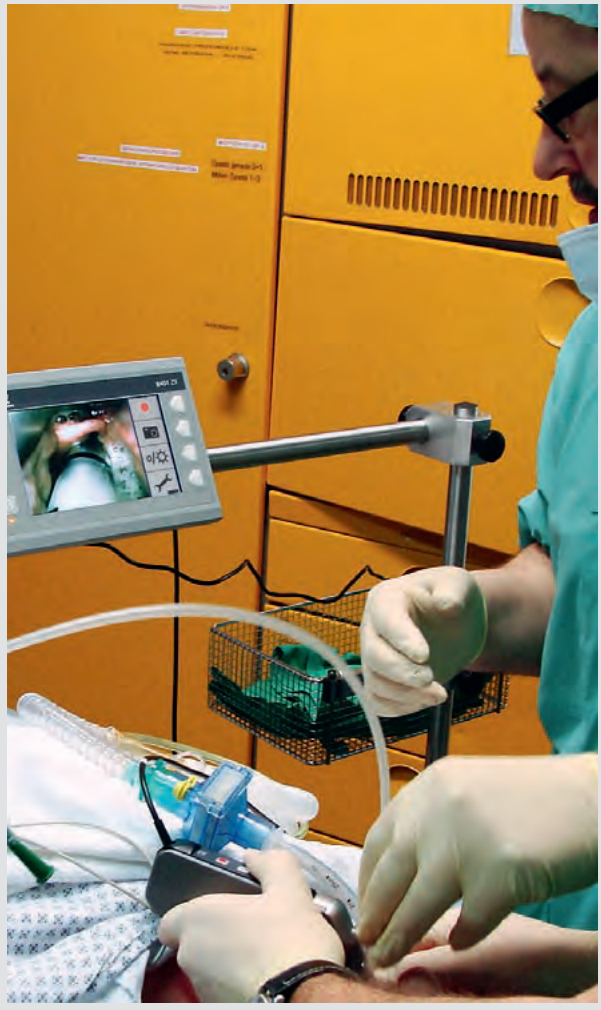
The stainless steel laryngoscope blade corresponds to the European closed version and, therefore, meets all hygienic standards. Furthermore, the blade's optimized (minimized) height and flattened proximal end ensures minimal discomfort for the patient, even when the oral aperture is greatly restricted. The original MACINTOSH blade shape is available in sizes 2, 3 and 4. A special curved blade design, the D-BLADE, is available for difficult airways in adults. MILLER 0 and 1 blade shapes are available for use in neonatology and pediatrics.

The CMOS chip provides optimal visualization via the approx. 60° angle of view and high-power LED illumination. In addition, fogging of the telescope due to the heating-up of the LED is practically eliminated. The blade tip appears at the top of the image border. The C-MAC® system is ready for use within seconds. Rechargeable lithium-ion batteries guarantee use for two hours – equivalent to approx. 200 intubations.

The monitor is made of shock-resistant plastic and is also splash-proof (IP54). A resolution of 800 x 480 pixels makes the screen very fast. The laryngoscope enables detail screens as well as video sequences to be captured and stored on a SD card in a JPEG or MPEG4 format. To ensure rapid documentation, only SDHC cards class 10 should be used. Consequently, menu navigation is straightforward.

The plug is mounted on the rear to avoid impact – the VESA 75 norm enables easy connection of other accessories here.

The C-MAC® from KARL STORZ also stands out as its total weight is less than 1.5 kg (including a laryngoscope). The C-MAC® system can be stored in a practical, water-repellent protective bag and is, therefore, ideal for preclinical use.



Prof. Dr. V. DÖRGES, M.D.,
Universitätsklinikum Schleswig-Holstein, Campus Kiel
Klinik für Anästhesiologie und Operative Intensivmedizin
Kiel, Germany

Intubation Fiberscopes

Eyepiece Versions

KARL STORZ provides the instruments you need to meet the special challenges of patients who cannot be intubated with conventional methods. Nasopharyngeal awake intubation is regarded as the gold standard of difficult airway management. We offer solutions for any challenge!

Our versatile intubation fiberscopes can be used in all clinical settings whether in intensive care units or emergency rooms as well as for patients with anticipated difficult airways during induction. The various sheath diameters enable you to select the ideal instrument for your patient and allow a swift reaction thanks to the compact, flexible LED light sources.

Special Features:

- **Sheath stiffness adapted to anesthesiological requirements**
- **Suitable for both fiber optic intubation and bronchoscopy**
- **Patented sheath surface special treatment requires only minimal lubrication and provides optimal tube insertion**
- **Developed for use in the OR, ICU, ER**
- **Even safer tube introduction due to video-assisted control on the monitor**
- **Tube position of ETT, LMA, DLT can be verified**
- **Video-assisted monitoring for percutaneous tracheostomy**
- **Adaptable for foreign body removal or bronchial lavage**
- **Various outer diameters: 2.8; 3.7; 5.2 mm**
- **Diameter of working channel ranging from 1.2 to 2.3 mm**
- **Extremely bright, white light due to the LED light source with rechargeable Li-Ion batteries**
- **Intubation fiberscope can be directly connected to the C-MAC® monitor with the mobile camera head C-CAM™**
- **Suitable and validated for the following low-temperature reprocessing methods up to a max. of 60 °C: manual/mechanical cleaning and disinfection, sterilization with Steris® AMSCO V-PRO 1, Sterrad® (50S, 100S, 200S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**

Intubation Fiberscopes – eyepiece version, with optional LED battery light source

8-12

2.8 x 65 Intubation Fiberscope with optimized imaging

Intubation Fiberscope 11301 AA1 is ideal for use in neonatology due to its small outer diameter of 2.8 mm. This fiberscope is the only one of its size that has a working channel with 1.2 mm.

Intubation Fiberscope 11301 AA1 features a connector for suction valves for single or multiple use.

The special sheath surface combined with increased stiffness improves the gliding properties of the ETT over standard intubation fiberscopes.

The use of a mobile LED light source enables independent work under optimal lighting conditions.

Benefits:

- **Effective suction possible via the 1.2 mm working channel**
- **Suitable for use with endotracheal tubes as of 3.5 mm**
- **Increased stiffness and smoother passage of the ETT**
- **Ready for immediate use and easy to clean and reprocess**
- **Optimized for use with mobile light sources**
- **Intubation fiberscope can be connected to the C-MAC® monitor via the mobile C-CAM™ camera head**
- **Practical tube fixation via special adaptor**

11301 AA1

11301 AA1	**Intubation Fiberscope 2.8 x 65,**	
	Deflection up/down:	140°/140°
	Direction of view:	0°
	Angle of view:	90°
	Working length:	65 cm
	Working channel inner diameter:	1.2 mm
	Distal tip outer diameter:	2.8 mm

8-12

Optional Accessories for Intubation Fiberscopes see page 49 and pages 77 ff.

Intubation Fiberscopes

Eyepiece Versions

2.8 x 50 Intubation Fiberscope without suction port

Intubation Fiberscope 11301 AB1 is ideal for use in neonatology due to its small outer diameter of 2.8 mm. This fiberscope is the only one of its size that has a working channel of 1.2 mm.

Intubation Fiberscope 11301 AA1 features a connector for suction valves for single or multiple use.

The special sheath surface combined with increased stiffness improves the gliding properties of the ETT over standard intubation fiberscopes.

The use of a mobile LED light source enables independent work under optimal lighting conditions.

Benefits:

- **Effective suction possible via the 1.2 mm working channel**
- **Suitable for use with endotracheal tubes as of 3.5 mm**
- **Increased stiffness and smoother passage of the ETT**
- **Ready for immediate use and easy to clean and reprocess**
- **Optimized for use with mobile light sources**
- **Intubation fiberscope can be connected to the C-MAC® monitor via the mobile C-CAM™ camera head**
- **Practical tube fixation via special adaptor**

11301 AB1

11301 AB1	**Intubation Fiberscope 2.8 x 50,** without suction valve	
	Deflection up/down:	140°/140°
	Direction of view:	0°
	Angle of view:	90°
	Working length:	50 cm
	Working channel inner diameter:	1.2 mm
	Distal tip outer diameter:	2.8 mm

Optional Accessories for Intubation Fiberscopes see page 49 and pages 77 ff.

Intubation Fiberscopes

Eyepiece Versions

3.7 x 65 Intubation Fiberscope with optimized imaging

The 3.7 x 65 intubation fiberscope is a universal working instrument as it provides gold standard intubation for both adult and pediatric patients. Due to its small diameter, it is an excellent tool for the placement of double lumen tubes. Using a mobile LED light source and C-CAM™, the intubation fiberscope can be directly connected to the C-MAC® monitor for a monitor-assisted intubation solution that is both mobile and flexible – also suitable for electronic documentation.

Benefits:

- **Effective suction possible via 1.5 mm working channel**
- **Suitable for use with endotracheal tubes as of 4 mm**
- **Increased stiffness and smoother passage of the ETT**
- **Practical tube fixation via special adaptor**
- **Ready for immediate use and easy to clean and reprocess**
- **Optimized for use with mobile light sources**
- **Intubation fiberscope can be connected to the C-MAC® monitor via the mobile C-CAM™ camera head**

11302 BD2

11302 BD2	**Intubation Fiberscope 3.7 x 65,**	
	Deflection up/down:	140°/140°
	Direction of view:	0°
	Angle of view:	90°
	Working length:	65 cm
	Working channel inner diameter:	1.5 mm
	Distal tip outer diameter:	3.7 mm

8-12

Optional Accessories for Intubation Fiberscopes see page 49 and pages 77 ff.

Intubation Fiberscopes

Eyepiece Versions

5.2 x 65 Intubation Fiberscope with optimized imaging

The 5.2 x 65 intubation fiberscope creates an ideal balance between image size, working channel size and fiber optics. Effective suction is possible via the 2.3 mm working channel. The fiberscope is also suitable for removing foreign bodies or for bronchial lavage in the intensive care unit. Using a mobile LED light source and C-CAM™, the intubation fiberscope can be directly connected to the C-MAC® monitor for a monitor-assisted intubation solution that is both mobile and flexible – also for electronic documentation.

Benefits:

- **Effective suction possible via the large 2.3 mm working channel**
- **Suitable for use with endotracheal tubes as of 5.5 mm**
- **Increased stiffness and smoother passage of the endotracheal tube**
- **Practical tube fixation via special adaptor**
- **Ready for immediate use and easy to clean and reprocess**
- **Optimized for use with mobile light sources**
- **Intubation fiberscope can be connected to the C-MAC® monitor via the mobile C-CAM™ camera head**

11301 BN1

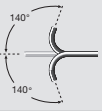
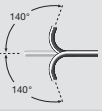
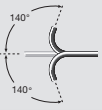
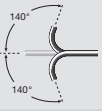
11301 BN1	**Intubation Fiberscope 5.2 x 65,**	
	Deflection up/down:	140°/140°
	Direction of view:	0°
	Angle of view:	110°
	Working length:	65 cm
	Working channel inner diameter:	2.3 mm
	Distal tip outer diameter:	5.2 mm

8-12

Optional Accessories for Intubation Fiberscopes see page 49 and pages 77 ff.

Intubation Fiberscopes

Eyepiece Versions

Intubation Fiberscopes	Order No. Eyepiece		Deflection up/down	Direction of view	Angle of view	Working length	Total length	Working channel inner diameter	Distal tip outer diameter	Recommended ETT diameter as of*
2.8 x 65	11301 AA1			0°	90°	65 cm	98 cm	1.2 mm	2.8 mm	3.5 mm
2.8 x 50	11301 AB1			0°	90°	50 cm	83 cm	1.2 mm	2.8 mm	3.5 mm
3.7 x 65	11302 BD2			0°	90°	65 cm	93 cm	1.5 mm	3.7 mm	4.5 mm
5.2 x 65	11301 BN1			0°	110°	65 cm	93 cm	2.3 mm	5.2 mm	5.5 mm

Accessories included in delivery:

11025 E

13242 XL

11301 CF

11301 CD

29100

11301 CE

11275CL2/10
11276CL/10

27677 A	**Case**
11025 E	**Pressure Compensation Cap,** for ventilation during gas sterilization
13242 XL	**Leakage Tester,** with bulb and manometer
11301 CF	LIPP **Tube Holder,** for intubation fiberscopes
29100	**Plug,** for LUER-Lock connector for cleaning, **black, autoclavable,** package of 10
2x 11301 CD	**Irrigation Adaptor,** for machine cleaning, reusable, for fiberscopes
11301 CE	**Suction Valve,** for single use, package of 20
11275CL2/10	**Cleaning Brush,** tapered, outer diameter 3 – 5 mm, for working channel 1.8 – 2.8 mm, length 116 cm
11276CL/10	**Long Cleaning Brush,** for working channel 1.2 – 1.7 mm, length 110 cm

8-12

Accessories (included in delivery)								Add. Accessories	
Case	Pressure Compensation Cap	Leakage Tester	LIPP Tube Holder	Cleaning Brush	Plug	Irrigation Adaptor	Suction Valve	Biopsy Forceps	Flexible Grasping Forceps
27677 A	11025 E	13242 XL	11301 CF	11276CL/10	29100	2x 11301 CD	11301 CE	11003 MA	11003 MB
27677 A	11025 E	13242 XL	11301 CF	11276CL/10	29100	2x 11301 CD	11301 CE	11003 MA	11003 MB
27677 A	11025 E	13242 XL	11301 CF	11276CL/10	29100	2x 11301 CD	11301 CE	11003 MA	11003 MB
27677 A	11025 E	13242 XL	11301 CF	11275CL2/10	29100	2x 11301 CD	11301 CE	11001 KL	11002 KS

Optional Accessories:

11003 MA **Biopsy Forceps,** flexible, oval, double action jaws, diameter 1 mm, length 110 cm

11003 MB **Grasping Forceps,** flexible, double action jaws, diameter 1 mm, length 110 cm, for flexible bronchoscopes

11001 KL **Biopsy Forceps,** flexible, spoon-shaped, round, double action jaws, diameter 1.8 mm, working length 120 cm

11002 KS **Grasping Forceps,** flexible, alligator jaws, double action jaws, diameter 1.8 mm, working length 120 cm

8-12

* **Please note that the accuracy of the ETT diameter may vary depending on the manufacturer's quality.**

For product information on flexible bronchoscopes see catalogs THORAX and ENT
Instrument Carts see chapter 5

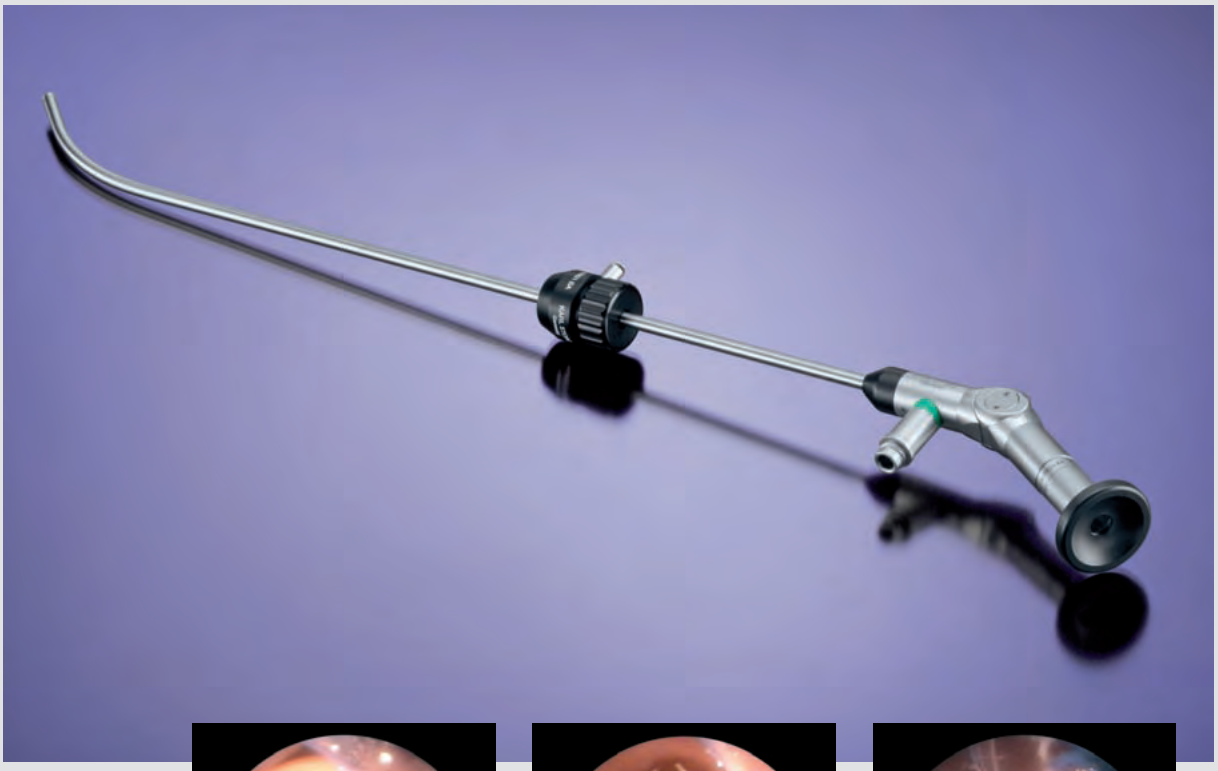
BONFILS **Retromolar Optical Stylets**

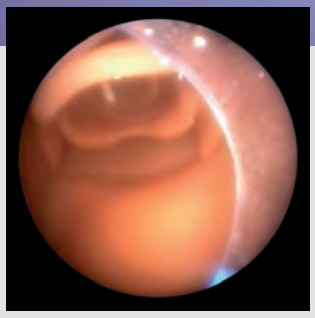
Eyepiece Versions

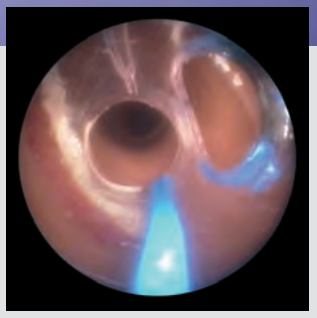
KARL STORZ — ENDOSKOPE

The expert instrument for multiple applications in airway management combines technical sophistication with utmost reliability

Unexpected difficult airways are always a challenge in airway management. With the BONFILS optical stylet and its versatile intubation techniques, this situation can be brought back to a controlled status. The endotracheal tube is guided into the trachea under direct vision and the possibility of simultaneous application of oxygen provides more safety. Moreover, KARL STORZ offers a solution to meet the most stringent hygiene requirements – the autoclavable SILVER LINE.







8-12

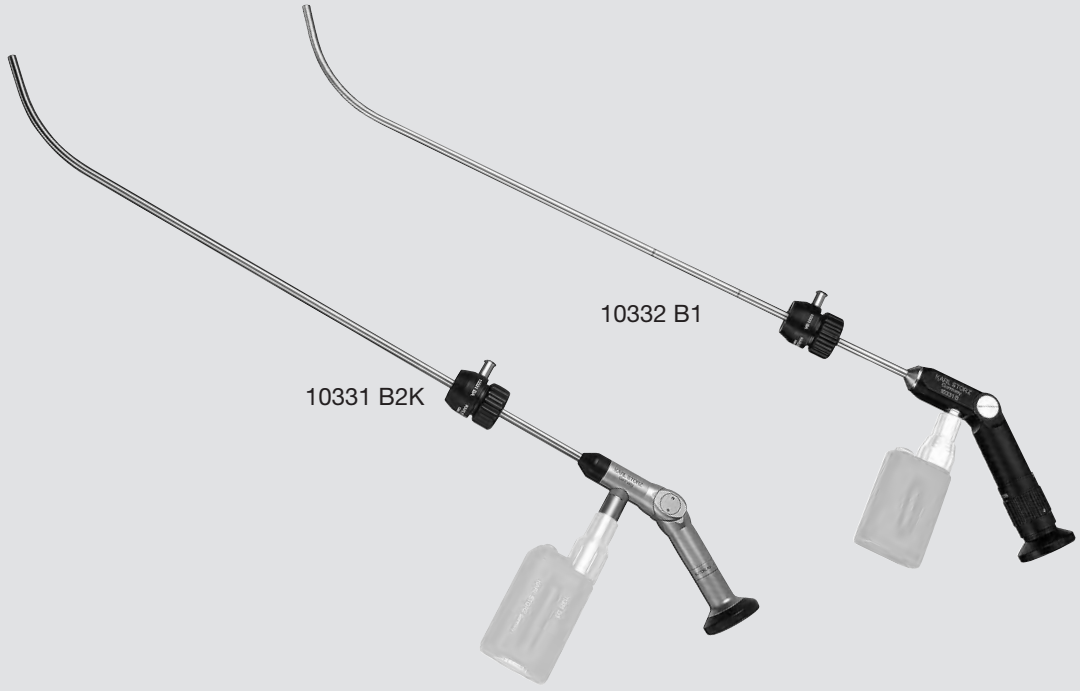
BONFILS **Retromolar Optical Stylets**

Eyepiece Versions

KARL STORZ — ENDOSKOPE

Special Features:

- **SILVER LINE – autoclavable**
- **Particularly suitable for the unexpected difficult airway**
- **Use in the case of minimal mouth opening (> 1 cm) possible**
- **Introduction of the tube under visualization: What you see is what you get!**
- **Continuous O_2 flow via tube adaptor between tube and instrument**
- **One-person intubation possible**
- **Connect and intubate – thanks to the mobile LED "Power of Light" light source**
- **Quick and easy cleaning**
- **Suitable and validated for the following low-temperature reprocessing methods up to bis max. 60 °C: manual/machine cleaning and disinfection, sterilization with Steris® AMSCO V-PRO 1, Sterrad® (50S, 100S, 200S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**
- **Recommended for video-assisted intubation with C-CAM™ to C-MAC® monitor**



	10332 B1	BONFILS **Retromolar Optical Stylet,** outer diameter 3.5 mm, for ETT 4 – 5.5 mm, usable sheath length 35 cm, distal bending 40°, with movable eyepiece, including Tube Holder 10332 BA for tube fixation and O_2 application
NEW	10331 B2K	BONFILS **Retromolar Optical Stylet, autoclavable,** outer diameter 5 mm, for ETT > 5.5 mm, usable sheath length 40 cm, distal bending 40°, with movable eyepiece, with Tube Holder 10331 BA for tube fixation and O_2 application

8-12

LED Battery Light Source for Endoscopes (11301 D1/D3), optional, see page 60

Components/Spare Parts see chapter 7

BONFILS **Retromolar Optical Stylets**

Eyepiece Versions

Optical Stylets	Order No. Eyepiece		Distal bending	
BONFILS **3.5 x 35**	10332 B1			
BONFILS **5 x 40**	10331 B2K			

Accessories included in delivery:

10332 BA/10331 BA

27677 BM	**Case,** internal dimensions (w x d x h): 490 x 290 x 85 mm
27677 C	**Plastic Case,** without inserts, internal dimensions (w x d x h): 480 x 285 x 80 mm
10332 BA	**Tube Holder for ETT,** with O_2 application connection, inner diameter 3.5 mm
10331 BA	**Tube Holder,** inner diameter 5 mm

8-12

	Angle of view	Working length	Total length	Distal tip outer diamter	Recommended ETT diameter as of*	Accessories (included in delivery)	
						Case	Tube Holder
	90°	35 cm	52 cm	3.5 mm	4 mm	27677 BM	10332 BA
	110°	40 cm	54 cm	5 mm	5.5 mm	27677 BM	10331 BA

8-12

* **Please note that the accuracy of the ETT diameter may vary depending on the manufacturer's quality.**

Instrument Carts see chapter 5
LED Battery Light Source for Endoscopes (11301 D1/D3), optional, see page 60

Special Features

C-CAM™ transforms the C-MAC® video laryngoscope into an all-round system unit for complete airway management. The C-MAC® monitor is at the core of all imaging systems. C-CAM™ is a high-grade CMOS camera with VGA resolution which can be connected to all KARL STORZ endoscopes with eyepieces. Illumination is ensured through the Power-LED battery light sources. Consequently, this is the first battery-powered video system to guarantee high-quality documentation. KARL STORZ has once again proven that high quality and mobility are not mutually exclusive.

4-12

C-MAC® Monitor

for visual endotracheal intubation

Special Features:

- **Resistant ABS plastic housing**
- **Splash-proof according to IP54**
- **7" TFT wide view angle display with resolution of 800 x 480 pixels**
- **Ready for use within seconds**
- **Documentation of still images (JPEG) and videos (MPEG4) on SD memory card**
- **VESA 75 norm for connecting and attaching racks**
- **Soft keys enable use within seconds**
- **Cinch video output for connecting external monitor**
- **System open for further components**
- **Battery operating time for up to 2 hours**
- **World power supply 100 – 240 VAC, 50/60 Hz**
- **Operation with line voltage and rechargeable lithium-ion batteries**
- **Additional standards: RTCA/DO-160F, EMI Test Report (German air rescue service DRF Luftrettung)**

8402 ZX-1

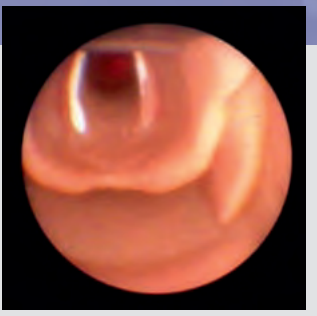
20 2901 32/**20** 2901 31

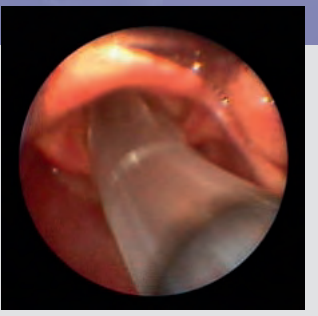
8402 ZX-1	**Monitor for CMOS Endoscopes,** screen size 7", documentation can be stored directly on SD card, rechargeable Li-Ion batteries, power adaptor for EU, UK, USA and Australia, power supply 110 – 240 VAC, 50/60 Hz, additional standards: RTCA/DO-160F, EMI Test Report (German air rescue service DRF Luftrettung), **suitable for wipe disinfection**
20 2901 32	**C-CAM™ Camera Head,** 8-pin, one-chip CMOS camera head, resolution 640 x 480, focal length f = 20 mm, compatible with C-HUB™ **20** 2901 01 and C-MAC® 8402 ZX-1
20 2901 31	**C-CAM™ Camera Head,** 6-pin, one-chip CMOS camera head, resolution 640 x 480, focal length f = 20 mm, compatible with C-MAC® 8401 ZX

8-12

Video Intubation System

The system allows a changeover of instruments in seconds, a decisive advantage in critical situations. But also in an emergency, where there is no time for video-assisted intubation, we offer the right adaptor solutions. New perspectives for the teaching and further training of medical personnel are also provided. The system design differs considerably from other providers where you can only find so-called “stand-alone” solutions without any compatibility.





4-12

TELE PACK X NEW

Documentation Terminal, Compact, Mobile

KARL STORZ — ENDOSKOPE

TELE PACK X is a compact, portable and flexible system that has been developed for use in a large number of fields. It can be used in doctors' practices as well as in emergency rooms. The TELE PACK X monitor offers maximum resolution and very high color fidelity for a first-class video playback. To enable swift and easy work, TELE PACK X combines all that is needed: monitor, camera and light source. Consideration has also been given to documentation: integrated data management enables comprehensive recording of examinations or surgical interventions. Multiple USB ports and an SD card slot are available to store the data.

Crystal clear display

- 15" LCD display
- Image rotation
- 24-bit color intensity for natural color rendition
- DVI video output for connecting HD monitors

Flexible storage possibilities

- SD card slot for high storage capacity
- USB ports for external hard drives, USB sticks and post-script printers
- Picture gallery for records
- Playback of saved videos
- Print-ready patient report documentation

Natural illumination

- HiLux 50 Watt high-performance light source
- Natural colour rendition close to daylight with a color temperature of 6000 K
- Up to 1000 hours lamp operating time

Easy control combined with utmost safety

- Membrane keyboard for wipe-down disinfection
- Hot keys for rapid and direct adjustment
- Arrow keys for intuitive control
- Connection socket for pedal control

Additional information

- Sturdy, portable housing
- Ergonomically designed handle for convenient transport
- World power supply unit: 100 – 240 VAC, 50/60 Hz
- Dimensions (w x h x d): 450 x 350 x 150 mm
- Weight: 7 kg

4-12

TELE PACK X NEW

Sample Configuration

KARL STORZ — ENDOSKOPE

20 045001-EN

20 0450 01-EN **TELE PACK X,** endoscopic video unit for use with TELECAM one-chip camera heads and video endoscopes, incl. 50 W HiLux light source, 15" LCD TFT screen, USB/SD memory module, color systems **PAL/NTSC,** with integrated Image Processing Module, power supply 100 – 240 VAC, 50/60 Hz

including:

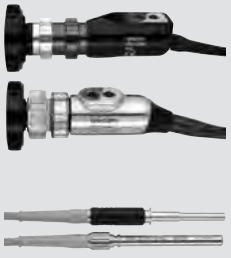
USB Silicone Keyboard, with touchpad, US character set

USB Flash Drive, 4 GB

Mains Cord

Mains Cord, US version

TELECAM One-chip Camera Heads and Fiber Optic Light Cable



20 2331 02 **TELECAM DX II Camera Control Unit,** color system **NTSC,** 30 mm

20 2331 03 **TELECAM DX II Camera Control Unit,** color system **NTSC,** 38 mm

20 2120 30 **TELECAM One-Chip Camera Head,** color system **PAL**

20 2121 30 **TELECAM One-Chip Camera Head,** color system **NTSC**

20 2120 40 **TELECAM One-Chip Camera Head, autoclavable,** color system **PAL**

20 2121 40 **TELECAM One-Chip Camera Head, autoclavable,** color system **NTSC**

495 NTA **Fiber Optic Light Cable,** diameter 2.5 mm, length 230 cm

495 NA **Fiber Optic Light Cable,** diameter 3.5 mm, length 230 cm

Specifications:

Power input	100 W
Power supply	100-240 VAC
Dimensions w x h x d	450 x 350 x 150 mm
Weight	7 kg
Interface	- video interface: DVI-D (in/out) - audio: 3.5 mm phonejack (1x lateral, 1x rear), Line in, Line out - footswitch port: 5-pin socket for two-pedal footswitch - printer port: USB - printer language: PostScript
Light source	- lamp: metal halid 50 W - color temperature: 5700 K - average service life: approx. 1000 h

Image format	JPG
Video codec	MPEG-4
Video format	PAL/NTSC
Memory interface	USB 2.0; SD memory card (SDHC compatible)
TFT monitor	- screen size: 15" - resolution: 1024 x 768 - contrast: 700:1
Loudspeaker output	2 W

8-12

Keyboards with foreign-language character sets and further accessories for TELE PACK X
see catalog TELEPRESENCE

Components/Spare Parts see chapter 7

Battery Light Source LED BRITE LITE

Accessories for Intubation Fiberscopes and Endoscopes

KARL STORZ offers a wide range of instruments for the expected and unexpected difficult airway management. Therefore, it is absolutely necessary to provide a battery light source which fullfills the high standard required in this field. With over 100 lm/approx. 150 klx brightness, 5500 K color temperature and weighing under 120 g, the LED Battery Light Source BRITE LITE sets new standards in airway management. The LED life cycle is approx. 50,000 hours.

7-05

Battery Light Source LED BRITE LITE

Accessories for Intubation Fiberscopes and Endoscopes

Special Features:

- **Battery light source with extremely high light intensity >100 lm / > 150 klx**
- **Available as battery and rechargeable version**
- **Absolute white light due to LED technology**
- **Special light focus allows optimal light adjustment at the endoscope connector**
- **LED provides up to 50,000 hours lifetime**
- **Burning time of 120 min**
- **Waterproof, fully immersible for cleaning and disinfection (11301 D1/D3)**

11301 D1/D3/DE/DF

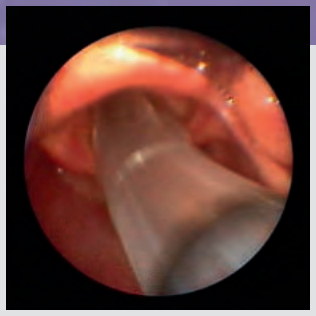
11301 DG

11301 D1	**Battery Light Source LED for Endoscopes,** with fine screw thread, brightness > 100 lm / > 150 klx, burning time > 120 min, weight approx. 150 g, waterproof and fully immersible for manual cleaning and disinfection, with 2 Photo Batteries 121306 P
11301 D3	**Same,** with coarse thread
121306 P	**Photo Battery,** lithium, 3 V, CR 123 A
11301 DE	**Battery Light Source LED for Endoscopes,** rechargeable, with click connection, brightness > 110 lm / >150 klx, color temperature 5500 K, lithium-ion batteries, charging time 60 min, burning time at 100% brightness 40 min, weight approx. 150 g ready for use, **suitable for wipe disinfection**
11301 DF	**Same,** with fast screw thread
11301 DG	**Charging Unit,** for 11301 DE/11301 DF, for two LED battery light sources, with fixed integrated power supply and adaptor for EU, UK, USA and Australia, power supply 110 – 240 VAC, 50/60 Hz, **suitable for wipe disinfection**
11301 DH	**Holder,** for Charging Units 11301 DG, 8546 LE and 8401 XDL

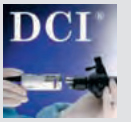
1-04$_3$

DCI® Video Intubation System

The system allows a changeover of instruments in seconds, a decisive advantage in critical situations. But also in an emergency, where there is no time for video-assisted intubation, we offer the right adaptor solutions. New perspectives for the teaching and further training of medical personnel are also provided. The system design differs considerably from other providers where you can only find so-called “stand-alone” solutions without any compatibility.



4-12



Special Features:

- **Visualization of intubation process through telescope in distal region of laryngoscope blade**
- **Excellent for teaching and training purposes**
- **Suitable for difficult intubation**
- **Exchangeable DCI® video camera in handle**
  – bright and clear image
  – rapid changeover to other DCI® video instruments
- **Suitable and validated for the following low-temperature reprocessing methods up to a max. of 60 °C: manual/mechanical cleaning and disinfection, sterilization with Steris® AMSCO V-PRO 1, Sterrad® (50S, 100S, 200S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**
- **The integrated electronic filter of the ENDOVISION® TELECAM (EF) is optimally matched to the video laryngoscope, completely eliminating the Moiré effect**
- **Compatible with the KARL STORZ ENDOVISION® TELECAM SL product line and TELE PACK X with integrated image processing module**

8401 A/B/K

8401 C

8401 A	BERCI-KAPLAN **DCI® Video Laryngoscope,** for DCI® technology, with MACINTOSH laryngoscope blade, size 3, angle of view 60°
8401 B	**Same,** MACINTOSH laryngoscope blade, size 4
8401 C	**Same,** with DÖRGES emergency laryngoscope blade, universal size
8401 K	**Same,** with MACINTOSH laryngoscope blade, size 2

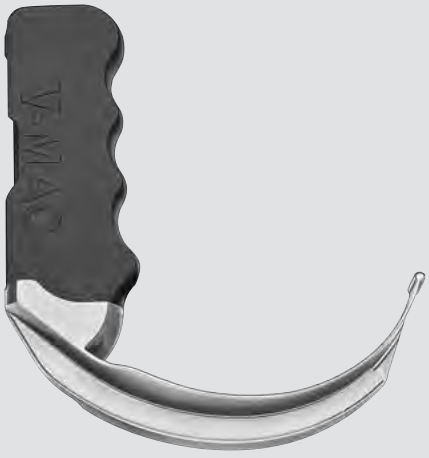
7-05$_2$

Illustrations may not be to scale.

8401 D/G

8401 E

	8401 D	BERCI-KAPLAN **DCI® Video Laryngoscope,** for DCI® technology, with MILLER laryngoscope blade, size 0, angle of view 60°
	8401 E	**Same,** with MILLER laryngoscope blade, size 3
	8401 G	**Same,** with MILLER laryngoscope blade, size 1



8401 H

NEW	8401 H	DÖRGES **DCI® Video Laryngoscope,** with special curved blade for the difficult airway, DCI® technology, angle of view 60°

4-12

DCI® Video Intubation System

What is DCI®?

The DCI® (= **D**irect **C**oupled **I**nterface or direct coupling) intubation system offers you all endoscopic possibilities for successful airway management. Our proven endoscope program with a standard eyepiece cup (1) has been expanded to include the DCI® system (2) with direct coupling. You can now operate all of our DCI® video laryngoscopes, flexible intubation fiberscopes and our BONFILS and BRAMBRINK Optical Stylets with a single camera.

How does it work?

The light cable (1) and the signal cable (2) for digital imaging are integrated in the DCI® camera in an ergonomically designed housing. The camera is connected to the DCI® endoscope and ready for use in a single hand movement. The light inlet and imaging ports are positioned on the endoscope side where the eyepiece cup is normally found.

The development of our DCI® video laryngoscope in 2001 was based on the simple idea of integrating an endoscopic system within a standard laryngoscope blade. In this system, the camera is incorporated in an ergonomically designed handle. Various laryngoscopes can be connected to the handle. Anatomical structures are displayed in a magnified form on a monitor. The field of view is enhanced up to 60°, a dramatic improvement over conventional laryngoscopy. The DCI® video laryngoscope is the optimal solution for teaching and training routine intubation under total visual control.

Options in an emergency

With the aid of the DCI® emergency adaptor (1), you can transform any DCI® telescope into a standard telescope with an eyepiece cup (2). You then have the option of connecting a LED battery light source (3) or a conventional light cable (4) to the endoscope.

Compatibility through and through

The practical eyepiece adaptor (1) enables you to transform any DCI® camera into a conventional endoscope camera with an eyepiece cup within seconds. This means that you can use existing instruments and still profit from the benefits offered by the DCI® intubation system.

2-07₁

Intubation Fiberscopes

DCI® Versions

KARL STORZ provides the instruments you need to meet the special challenges of patients who cannot be intubated using conventional methods. Nasopharyngeal awake intubation is regarded as the gold standard of anticipated difficult airway management. We offer solutions for any challenge!

Our versatile intubation fiberscopes can be used in all clinical settings whether in the intensive care unit/ emergency room or in the case of patients with anticipated difficult airways during induction. The various sheath diameters means that you can always select the ideal instrument for your patient.

Special Features:

- **Sheath stiffness adapted to anesthesiological requirements**
- **Suitable for both fiber optic intubation and bronchoscopy**
- **Patented sheath surface special treatment requires only minimal lubrication and provides optimal tube insertion**
- **Developed for use in the OR, ICU, ER**
- **Even safer tube introduction due to video-assisted control on the monitor**
- **Tube position of ETT, LMA, DLT can be verified**
- **Video-assisted monitoring for percutaneous tracheostomy**
- **Adaptable for foreign body removal or bronchial lavage**
- **Various outer diameters: 2.8; 3.7; 5.2 mm**
- **Diameter of working channel ranging from 1.2 to 2.3 mm**
- **Suitable and validated for the following low-temperature reprocessing methods up to a max. of 60 °C: manual/mechanical cleaning and disinfection, sterilization with Steris® AMSCO V-PRO 1, Sterrad® (50S, 100S, 200S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**

Intubation Fiberscope – DCI® version

8-12

Intubation Fiberscopes

DCI® Versions

2.8 x 50 Intubation Fiberscope with optimized imaging

The 2.8 x 50 intubation fiberscope is a universal working instrument as it provides gold standard intubation for both adult and pediatric patients. Due to its small diameter, it is an excellent tool for the placement of double lumen tubes. It can be directly connected to the TELE PACK X system with the DCI® II camera head for a monitor-assisted intubation solution that is both mobile and flexible.

Benefits:

- **Effective suction possible via the large 1.5 mm working channel**
- **Suitable for use with endotracheal tubes as of 4 mm**
- **Increased stiffness and smoother passage of the endotracheal tube**
- **Ready for immediate use and easy to clean and reprocess**

11301 ABD1

11301 ABD1	**DCI® Intubation Fiberscope 2.8 x 50,**	
	Deflection up/down:	140°/140°
	Direction of view:	0°
	Angle of view:	88°
	Working length:	50 cm
	Working channel inner diameter:	1.2 mm
	Distal tip outer diameter:	2.8 mm

Optional Accessories for Intubation Fiberscopes see page 71 and pages 79 ff.

8-12

Intubation Fiberscopes

DCI® Versions

3.7 x 65 Intubation Fiberscope with optimized imaging

The 3.7 x 65 intubation fiberscope is a universal working instrument as it provides gold standard intubation for both adult and pediatric patients. Due to its small diameter, it is an excellent tool for the placement of double lumen tubes. It can be directly connected to the TELE PACK X system with the DCI® II camera head for a monitor-assisted intubation solution that is both mobile and flexible.

Benefits:

- **Effective suction possible via the large 1.5 mm working channel**
- **Suitable for use with endotracheal tubes as of 4 mm**
- **Increased stiffness and smoother passage of the endotracheal tube**
- **Ready for immediate use and easy to clean and reprocess**

11302 BDD2

11302 BDD2	**DCI® Intubation Fiberscope 3.7 x 65,**	
	Deflection up/down:	140°/140°
	Direction of view:	0°
	Angle of view:	90°
	Working length:	65 cm
	Working channel inner diameter:	1.5 mm
	Distal tip outer diameter:	3.7 mm

8-12

Optional Accessories for Intubation Fiberscopes see page 71 and pages 79 ff.

5.2 x 65 Intubation Fiberscope with optimized imaging

The 5.2 x 65 intubation fiberscope creates an ideal balance between image size, working channel size and fiber optics. In case of emergency, suction is possible via the 2.3 mm working channel. The fiberscope is also suitable for removing foreign bodies or for bronchial lavage in the intensive care unit. It can be directly connected to the TELE PACK X system with the DCI® II camera head for a monitor-assisted intubation solution that is both mobile and flexible.

Benefits:

- **Effective suction possible via the large 2.3 mm working channel**
- **Suitable for use with endotracheal tubes > 5.5 mm**
- **Increased stiffness and smoother passage of the endotracheal tube**
- **Ready for immediate use and easy to clean and reprocess**

11301 BND1

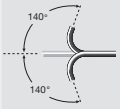
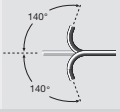
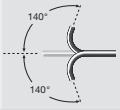
11301 BND1	**DCI® Intubation Fiberscope 5.2 x 65,**	
	Deflection up/down:	140°/140°
	Direction of view:	0°
	Angle of view:	110°
	Working length:	65 cm
	Working channel outer diameter:	2.3 mm
	Distal tip outer diameter:	5.2 mm

8-12

Optional Accessories for Intubation Fiberscopes see page 71 and pages 79 ff.

Intubation Fiberscopes

DCI® Versions

Intubation Fiberscopes	Order No. DCI®		Deflection up/down	Direction of view	Angle of view	Working length	Total length	Working channel inner diameter	Distal tip outer diameter	Recommended ETT diameter as of*
2.8 x 50	11301 ABD1			0°	88°	50 cm	78 cm	1.2 mm	2.8 mm	3.5 mm
3.7 x 65	11302 BDD2			0°	90°	65 cm	93 cm	1.5 mm	3.7 mm	4.5 mm
5.2 x 65	11301 BND1			0°	110°	65 cm	93 cm	2.3 mm	5.2 mm	5.5 mm

Accessories included in delivery:

11025 E

13242 XL

11301 CF

11301 CD

29100

11301 CE

11275CL2/10
11276CL/10

27677 A	**Case**
11025 E	**Pressure Compensation Cap,** for ventilation during gas sterilization
13242 XL	**Leakage Tester,** with bulb and manometer
11301 CF	LIPP **Tube Holder,** for intubation fiberscopes
29100	**Plug,** for LUER-Lock connector for cleaning, **black, autoclavable,** package of 10
2x 11301 CD	**Irrigation Adaptor,** for machine cleaning, reusable, for fiberscopes
11301 CE	**Suction Valve,** for single use, package of 20
11275CL2/10	**Cleaning Brush,** tapered, outer diameter 3 – 5 mm, for working channel 1.8 – 2.8 mm, length 116 cm
11276CL/10	**Long Cleaning Brush,** for working channel 1.2 – 1.7 mm, length 110 cm

8-12

Accessories (included in delivery)								Add. Accessories	
Case	Pressure Compensation Cap	Leakage Tester	LIPP Tube Holder	Cleaning Brush	Plug	Irrigation Adaptor	Suction Valve	Biopsy Forceps	Flexible Grasping Forceps
27677 A	11025 E	13242 XL	11301 CF	11276CL/10	29100	2x 11301 CD	11301 CE	11003 MA	11003 MB
27677 A	11025 E	13242 XL	11301 CF	11275CL2/10	29100	2x 11301 CD	11301 CE	11003 MA	11003 MB
27677 A	11025 E	13242 XL	11301 CF	11275CL2/10	29100	2x 11301 CD	11301 CE	11001 KL	11002 KS

Optional Accessories:

11003 MA **Biopsy Forceps,** flexible, oval, double action jaws, diameter 1 mm, length 110 cm

11003 MB **Grasping Forceps,** flexible, double action jaws, diameter 1 mm, length 110 cm, for flexible bronchoscopes

11001 KL **Biopsy Forceps,** flexible, spoon-shaped, round, double action jaws, diameter 1.8 mm, working length 120 cm

11002 KS **Grasping Forceps,** flexible, alligator jaws, double action jaws, diameter 1.8 mm, working length 120 cm

8-12

* **Please note that the accuracy of the ETT diameter may vary depending on the manufacturer's quality.**

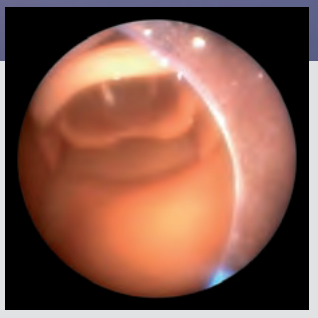
Product information on flexible bronchoscopes see catalogs THORAX and ENT
Instrument Carts see chapter 5

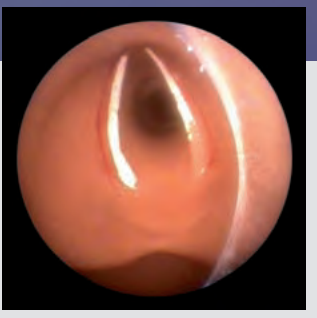
BONFILS/BRAMBRINK
Retromolar Optical Stylets
DCI® Versions

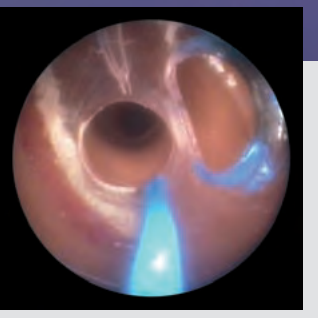
KARL STORZ — ENDOSKOPE

The expert instrument for multiple applications in airway management combines technical sophistication with utmost reliability

Unexpected difficult airways are always an additional challenge in airway management. With the BONFILS Optical Stylet and its versatile intubation techniques, this situation can be brought under control. The endotracheal tube is guided into the trachea under direct vision and the possibility of simultaneous application of oxygen provides more safety. KARL STORZ now offers a wide range of BONFILS and BRAMBRINK intubation endoscopes with outer diameters of 2 and 5 mm. All endotracheal tubes from 2.5 mm up to 8 mm can be used with this range of instruments.







8-12

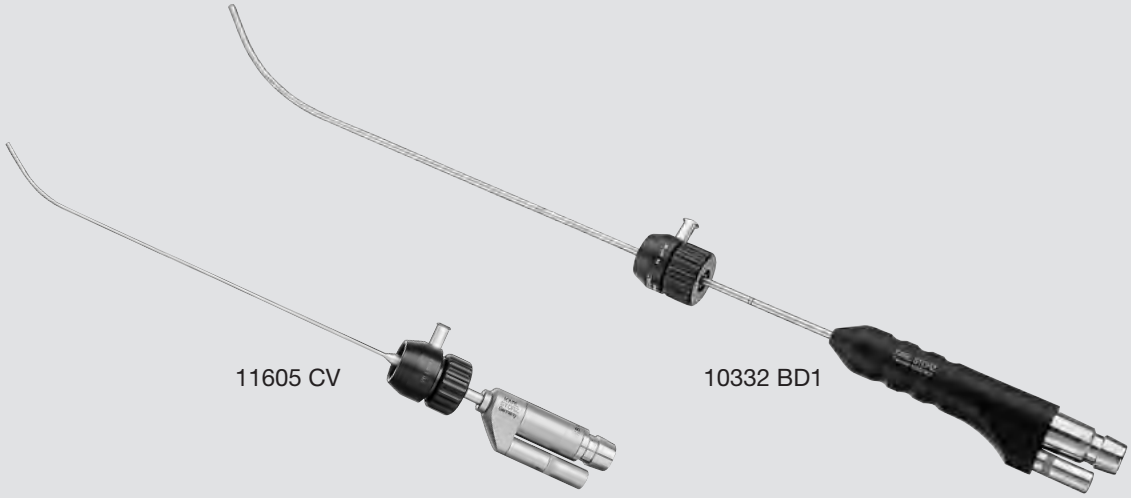
BONFILS/BRAMBRINK
Retromolar Optical Stylets
DCI® Versions

KARL STORZ — ENDOSKOPE

Optical Stylets

Special Features:

- **Particularly suitable for the unexpected difficult airway**
- **Use in the case of minimal mouth opening (> 1 cm) possible**
- **Introduction of the tube under visualization: What you see is what you get!**
- **Continuous O_2 flow via tube adaptor between tube and instrument**
- **One-person intubation possible**
- **Connect and intubate – thanks to the DCI® video intubation system**
- **Quick and easy cleaning**
- **Suitable and validated for the following low-temperature reprocessing methods up to bis max. 60 °C: manual/machine cleaning and disinfection, sterilization with Steris® AMSCO V-PRO 1, Sterrad® (50S, 100S, 200S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**
- **Recommended for video-assisted intubation with the DCI® camera to TELE PACK X**
- **We offer a complete product range of sizes to accommodate all patients**



11605 CV	BRAMBRINK **Retromolar DCI® Optical Stylet,** with DCI® connection, outer diameter 2 mm, for ETT 2.5 – 3.5 mm, usable sheath length 22 cm, distal bending 40°, including Tube Holder 10332 BA for tube fixation and O_2 application
10331 BD1	BONFILS **Retromolar DCI® Optical Stylet,** with DCI® connection, outer diameter 5 mm, for ETT > 5.5 mm, usable sheath length 40 cm, distal bending 40°, including Tube Holder 10331 BA for tube fixation and O_2 application
10332 BD1	BONFILS **Retromolar DCI® Optical Stylet,** with DCI® connection, outer diameter 3.5 mm, for ETT > 4 mm, usable sheath length 35 cm, distal bending 40°, including Tube Holder 10332 BA for tube fixation and O_2 application

8-12

For product information on TELE PACK X documentation terminal and DCI® camera see catalog TELEPRESENCE
Instrument Carts see chapter 5

BONFILS/BRAMBRINK
Retromolar Optical Stylets

DCI® Versions

Optical Stylets	Order No. DCI®		Distal bending	
BRAMBRINK **2 x 22**	11605 CV			
BONFILS **5 x 40**	10331 BD1			
BONFILS **3.5 x 35**	10332 BD1			

Accessories included in delivery:

10332 BA/10331 BA

27677 BM	**Case,** internal dimensions (w x d x h): 490 x 290 x 85 mm
27677 D	**Case,** internal dimensions (w x d x h): 310 x 215 x 75 mm
10332 BA	**Tube Holder for ETT,** with O_2 application connection, inner diameter 3.5 mm
10331 BA	**Tube Holder,** inner diameter 5 mm

8-12

Angle of view	Working length	Total length	Distal tip outer diameter	Recommended ETT diameter as of*	Accessories (included in delivery)	
					Case	Tube Holder
80°	22 cm	32 cm	2 mm	2.5 mm	27677 D	10332 BA
110°	40 cm	54 cm	5 mm	5.5 mm	27677 BM	10331 BA
110°	35 cm	49 cm	3.5 mm	4 mm	27677 BM	10331 BA

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* **Please note that the accuracy of the ETT diameter may vary depending on the manufacturer's quality.**

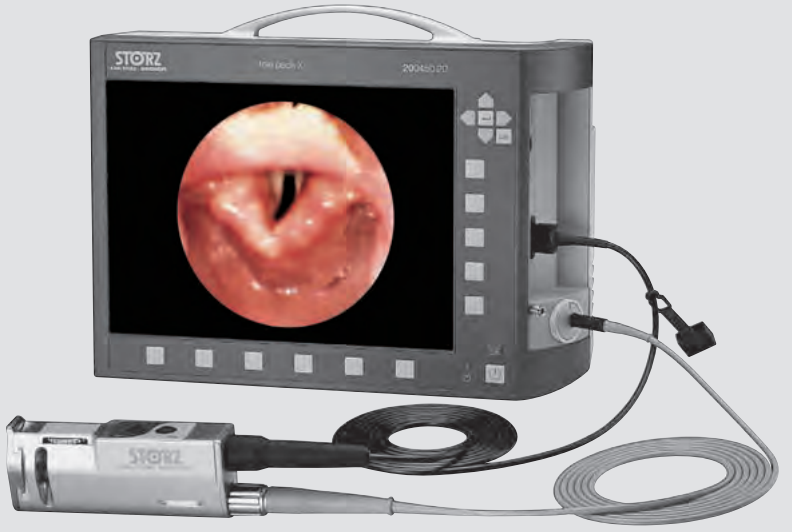
For product information on TELE PACK X documentation terminal and DCI® camera
see catalog TELEPRESENCE
Instrument Carts see chapter 5
LED Battery Light Source for Endoscopes (11301 D1/D3), optional, see page 60

TELE PACK X NEW

Documentation Terminal, Compact, Mobile

KARL STORZ — ENDOSKOPE

TELE PACK X is a compact, portable and flexible system that has been developed for use in a large number of fields. It can be used in doctors' practices as well as in emergency rooms. The TELE PACK X monitor offers maximum resolution and very high color fidelity for a first-class video playback. To enable swift and easy work, TELE PACK X combines all that is needed: monitor, camera and light source. Consideration has also been given to documentation: integrated data management enables comprehensive recording of examinations or surgical interventions. Multiple USB ports and an SD card slot are available to store the data.



Crystal clear display
- 15" LCD display
- Image rotation
- 24-bit color intensity for natural color rendition
- DVI video output for connecting HD monitors

Flexible storage possibilities
- SD card slot for high storage capacity
- USB ports for external hard drives, USB sticks and post-script printers
- Picture gallery for records
- Playback of saved videos
- Print-ready patient report documentation

Natural illumination
- HiLux 50 Watt high-performance light source
- Natural colour rendition close to daylight with a color temperature of 6000 K
- Up to 1000 hours lamp operating time

Easy control combined with utmost safety
- Membrane keyboard for wipe-down disinfection
- Hot keys for rapid and direct adjustment
- Arrow keys for intuitive control
- Connection socket for pedal control

Additional information
- Sturdy, portable housing
- Ergonomically designed handle for convenient transport
- World power supply unit: 100 – 240 VAC, 50/60 Hz
- Dimensions (w x h x d): 450 x 350 x 150 mm
- Weight: 7 kg

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TELE PACK X NEW

Sample Configuration

KARL STORZ — ENDOSKOPE

20 045001-EN

20 0450 01-EN **TELE PACK X,** endoscopic video unit for use with TELECAM one-chip camera heads and video endoscopes, incl. 50 W HiLux light source, 15" LCD TFT screen, USB/SD memory module, color systems **PAL/NTSC,** with integrated Image Processing Module, power supply 100 – 240 VAC, 50/60 Hz

including:

USB Silicone Keyboard, with touchpad, US character set

USB Flash Drive, 4 GB

Mains Cord

Mains Cord, US version

TELECAM One-chip Camera Heads and Fiber Optic Light Cables

20 2620 30 **DCI® II One-Chip Camera Head,** color system **PAL**

495 DV **Fiber Optic Light Cable,** diameter 2.5 mm, length 320 cm

Specifications:

Power input	100 W
Power supply	100-240 VAC
Dimensions w x h x d	450 x 350 x 150 mm
Weight	7 kg
Interface	- video interface: DVI-D (in/out) - audio: 3.5 mm phonejack (1x lateral, 1x rear), Line in, Line out - footswitch port: 5-pin socket for two-pedal footswitch - printer port: USB - printer language: PostScript
Light source	- lamp: metal halid 50 W - color temperature: 5700 K - average service life: approx. 1000 h

Image format	JPG
Video codec	MPEG-4
Video format	PAL/NTSC
Memory interface	USB 2.0; SD memory card (SDHC compatible)
TFT monitor	- screen size: 15" - resolution: 1024 x 768 - contrast: 700:1
Loudspeaker output	2 W

Keyboards with foreign-language character sets and further accessories for TELE PACK X
see catalog TELEPRESENCE

Components/Spare Parts see chapter 7

8-12

Fiber Optic and Fluid Light Cables

20 2600 31

20 2600 30

Fluid Light Cables

495 FO	**Fluid Light Cable,** diameter 3 mm, length 180 cm
495 FP	**Same,** length 250 cm

Fiber Optic Light Cables

495 DV	**Fiber Optic Light Cable,** diameter 2.5 mm, length 320 cm, for use with DCI® Camera Heads **20** 2620 30, **20** 2621 31, **22** 2600 31-3 and **22** 2601 31-3
495 NA	**Fiber Optic Light Cable,** diameter 3.5 mm, length 230 cm
495 NT	**Fiber Optic Light Cable,** diameter 2.5 mm, length 180 cm
495 NTF	**Same,** length 350 cm
495 NTW	**Fiber Optic Light Cable,** with 90° deflection to the cold light fountain on the fountain side, diameter 2.5 mm, length 180 cm
495 NTXS	**Same,** length 230 cm

Adaptors

20 2600 31	**Adaptor,** for use of DCI® telescopes with standard camera heads
20 2600 30	**Adaptor,** for connection of standard eyepiece telescopes with DCI® camera heads

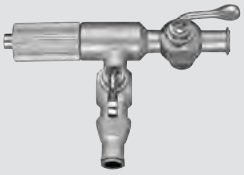
8-12

Additional Fiber Optic and Fluid Light Cables, see catalog TELEPRESENCE

Accessories

for Flexible Intubation Fiberscopes

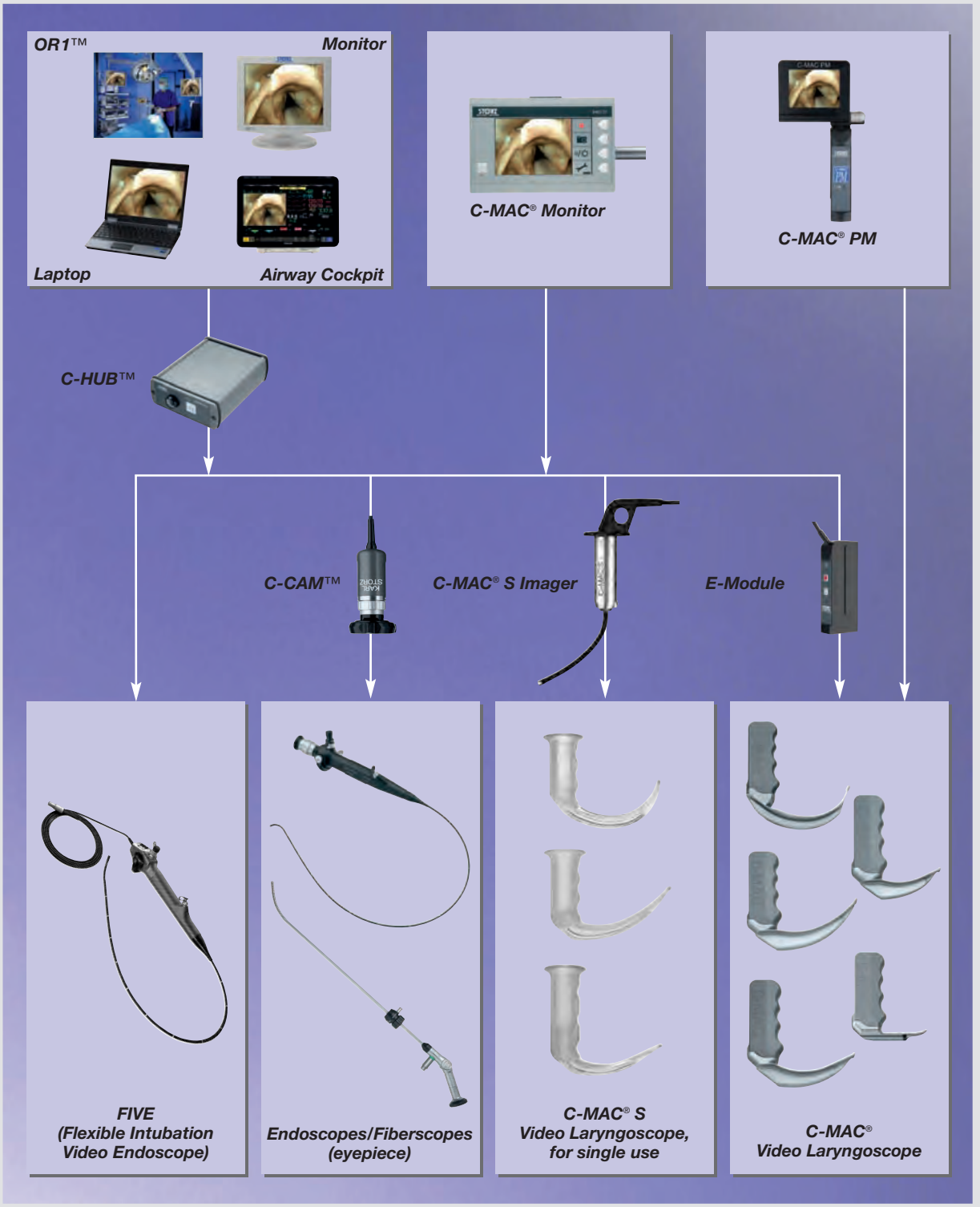
KARL STORZ — ENDOSKOPE

	11301 CA	**Leaflet Valve,** for single use, package of 20
	11301 CB	**Suction Valve,** reusable
	11301 CD	**Irrigation Adaptor,** for machine cleaning, reusable, for fiberscopes
	11301 CE	**Suction Valve,** for single use, package of 20
	6927691	**Adaptor for Two-Way Stopcock,** LUER-Lock, with O_2 tube connection
	600007	**LUER-Lock Tube Connector,** male, tube diameter 6 mm
	11301 CF	LIPP **Tube Holder,** for intubation fiberscopes

8-12

Video Systems for Airway Management

KARL STORZ offers a wide range of instruments and possibilities to ensure that airway management is successful. The broad range of KARL STORZ products offers you all possibilities – for dealing with standard or unexpectedly difficult intubation. In addition, all of our fiberscopes are powered by a LED battery light source, ensuring that even in an emergency you will never be left in the dark.



8-12

C-MAC® Video Laryngoscope

8-12

C-MAC® Video Laryngoscope

for visual endotracheal intubation

KARL STORZ — ENDOSKOPE

Monitor/Electronic Module

Special Features:

- **Resistant ABS plastic housing**
- **Splash-proof according to IP54**
- **7" TFT wide view angle display with resolution of 800 x 480 pixels**
- **Ready for use within seconds**
- **Documentation of still images (JPEG) and videos (MPEG4) on SD memory card**
- **VESA 75 norm for connecting and attaching racks**
- **Soft keys enable use within seconds**
- **Cinch video output for connecting external monitor**
- **System open for further components**
- **Operating time with lithium-ion batteries of about 2 hours**
- **World power supply 100 – 240 VAC, 50/60 Hz**
- **Operation with line voltage and rechargeable lithium-ion batteries**
- **Processing of the electronic module: Suitable and validated for the following low-temperature reprocessing methods up to bis max. 60 °C: manual/machine cleaning and disinfection, sterilization with Steris® AMSCO V-PRO 1, Sterrad® (50S, 100S, 200S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**
- **Additional standards: RTCA/DO-160F, EMI Test Report (German air rescue service DRF Luftrettung)**

8402 ZX-1

8402 X

8402 ZX-1	**Monitor for CMOS Endoscopes,** screen size 7", documentation can be stored directly on SD card, rechargeable Li-Ion batteries, power adaptor for EU, UK, USA and Australia, power supply 110 – 240 VAC, 50/60 Hz, additional standards: RTCA/DO-160F, EMI Test Report (German air rescue service DRF Luftrettung), **suitable for wipe disinfection**
8402 X	**Electronic Module,** for C-MAC® Monitor 8402 ZX-1, for use with C-MAC® video laryngoscopes

8-12

BERCI-KAPLAN
C-MAC® Video Laryngoscope
for visual endotracheal intubation

KARL STORZ — ENDOSKOPE

Video Laryngoscope

Special Features:
- **European closed laryngoscope blade design**
- **Angle of view approx. 80°**
- **Ergonomically designed handle**
- **CMOS technology with LED illumination**
- **Proximal slanted blade**
- **Available with or without suction**
- **Processing video laryngoscopes: suitable and validated for the following low-temperature reprocessing methods up to bis max. 60 °C: manual/machine cleaning and disinfection, sterilization with Steris® AMSCO V-PRO 1, Sterrad® (50S, 100S, 200S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**
- **Blade tips of all blade types visible for safe navigation**

MACINTOSH
- **For direct and indirect laryngoscopy**
- **Original English MACINTOSH blade shape**

D-BLADE
- **Special curved blade shape for difficult intubation**

MILLER
- **For pediatrics and neonatology in the day-to-day clinical routine, teaching and training as well difficult airway management**

8401 DXC/GXC

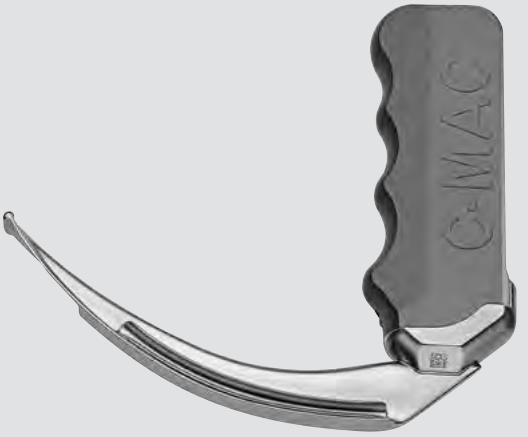
8401 KXC/AXC/BXC

NEW	8401 DXC	MILLER **C-MAC® Video Laryngoscope,** CMOS technology, size 0, for use with Electronic Modules 8401 X and 8402 X
NEW	8401 GXC	**Same,** size 1
	8401 KXC	BERCI-KAPLAN **C-MAC® Video Laryngoscope #2,** CMOS technology, with MACINTOSH laryngoscope blade, size 2, for use with Electronic Modules 8401 X and 8402 X
	8401 AXC	**Same,** size 3
	8401 BXC	**Same,** size 4

8-12

BOEDEKER-DÖRGES
C-MAC® Video Laryngoscope
for visual endotracheal intubation

8401 HX



8401 AX/BX

8401 AX	BOEDEKER-DÖRGES **C-MAC® Video Laryngoscope #3,** CMOS technology, with MACINTOSH laryngoscope blade, size 3, with catheter introduction sizes 14 – 16 Fr., for use with Electronic Modules 8401 X and 8402 X
8401 BX	**Same,** size 4, with catheter introduction sizes 16 – 18 Fr.
8401 HX	**C-MAC® Video Laryngoscope D-BLADE,** CMOS technology, with DÖRGES laryngoscope blade, for difficult intubation, with catheter introduction sizes 16 – 18 Fr., for use with Electronic Modules 8401 X and 8402 X

8-12

C-MAC® S Video Laryngoscope NEW

C-MAC® S for single use has the same outstanding features that distinguish C-MAC® metal performance blades. As a result, great value was also attached to maintaining the original MACINTOSH blade design. The D-BLADE is, of course, available as C-MAC® S. The imager enables blades to be exchanged within seconds and, as a camera, it forms the interface to the C-MAC® monitor. The C-MAC® S video laryngoscope is just as flexible and mobile as other C-MAC® laryngoscopes. Consequently, the instrument is ideally suited for all emergency and preclinical situations as it practically eliminates the need for complex transportation and re-processing procedures. With C-MAC® S you continue to profit from all the familiar benefits offered by the C-MAC® system: the only difference is that the C-MAC® S blade is designed for single use.

8-12

C-MAC® S Video Laryngoscope NEW

KARL STORZ — ENDOSKOPE

Video Laryngoscope for Single Use

Special Features:

- **Blade and handle form one continuous piece: optimum protection against infections**
- **D-BLADE with short handle**
- **Original English MACINTOSH blade shape**
- **Sturdy plastic material**
- **Compatible with C-MAC® monitor**
- **Blade tip always under direct view for safe navigation**
- **Ergonomically designed handle**
- **Compact design**

C-MAC® S Imager:

- **Handling oriented towards hygiene**
- **Reprocessing of the imager: suitable and validated for the following low-temperature reprocessing methods up to bis max. 60 °C: manual/machine cleaning and disinfection, sterilization with EtO gas; High-Level Disinfection (HLD) acc. to US standards**
- **Compatible with C-MAC® monitor**
- **Blade can be exchanged within seconds**

051113-10

051114-10

051113-10* BERCI-KAPLAN **C-MAC® S Video Laryngoscope MAC #3,** with MACINTOSH laryngoscope blade, size 3, for single use, sterile, package of 10, for use with C-MAC® Monitor 8402 ZX-1 and C-MAC® S Imager 8402 XS

051114-10* **Same,** size 4

8-12

* mtp medical technical promotion gmbh,
Take-Off GewerbePark 46, D-78579 Neuhausen ob Eck, Germany

C-MAC® S Video Laryngoscope NEW

051116-10

051116-10* **C-MAC® S Video Laryngoscope D-BLADE,** with DÖRGES laryngoscope blade, sterile, package of 10, for use with C-MAC® Monitor 8402 ZX-1 and C-MAC® S Imager 8402 XS

8402 XS

8402 XS **C-MAC® S Imager,** for C-MAC® Monitor 8402 ZX-1, suitable for manual and mechanical disinfection up to 60 °C and High-Level Disinfection (HLD) acc. to US standards, for use with C-MAC® S-Video Laryngoscopes 051113-10, 051114-10 and 051116-10

* mtp medical technical promotion gmbh,
Take-Off GewerbePark 46, D-78579 Neuhausen ob Eck, Germany

8-12

C-MAC® PM – The Pocket Monitor NEW

The new C-MAC® PM is so small, flexible and mobile that it fits into any pocket. This video laryngoscope is as easy to use as a direct laryngoscope, yet offers all the advantages of indirect laryngoscopy.

Robust and easy to handle, the C-MAC® PM is suitable for preclinical use. Moreover, its compactness makes it ideal for various emergency situations. The pocket monitor was specifically developed for special preclinical and clinical emergency situations; its 2.4" monitor delivers a contrast-rich image even in bright sunlight. Consequently, it is the ideal complement to the C-MAC® system.

8-12

C-MAC® PM – The Pocket Monitor NEW

Special Features:

- **Exchange of video laryngoscope within seconds**
- **Compatible with all C-MAC® video laryngoscopes (D-BLADE, MACINTOSH sizes 2-4, MILLER sizes 0 & 1)**
- **One hour operating time**
- **Rechargeable Li-ion battery with capacity control and intelligent power management**
- **High-resolution 2.4" LED display with 240 x 320 pixels for optimal view**
- **No additional on/off buttons thanks to the "Open-to-Intubate-Display"(OTI)**
- **Important for preclinical use: classified for protection class IPX8**
- **Due to the closed design, the entire pocket monitor unit can be fully immersed in disinfection solution which allows for easy and smooth reprocessing**
- **Suitable and validated for the following low-temperature reprocessing methods up to max. 60 °C: manual/machine cleaning and disinfection**
- **Additional standard: RTCA/DO-160F**

8401 XDK

8401 XDL

8401 XDK	**C-MAC® Pocket Monitor, Set,** unit with LCD monitor and power supply for all C-MAC® laryngoscopes, screen size 2.4", monitor movable via two rotation axis, rechargeable Li-Ion batteries, 1 h operation time, 2 h charging time, power management with capacity indicator: switches off automatically after 10 min, protection class IPX8, additional standard: RTCA/DO-160F, validated for up to a max. of 60 °C, manual/mechanical cleaning and disinfection, for use with C-MAC® video laryngoscopes including: **Protection Cap**
8401 XDL	**Charging Unit,** for C-MAC® Pocket Monitor 8401 XD, with fix integrated power supply and adaptor for EU, UK and USA, power supply 110 – 240 VAC, 50/60 Hz, suitable for wipe disinfection

8-12

Intubation Set -C22-, Model ULM **8400 B and Bag for Intubation Set -C22-, Model** ULM **8402 YE**
see pages 6-7

Components/Spare Parts see chapter 7

Flexible Intubation Video Endoscope for C-MAC®

NEW

KARL STORZ — ENDOSKOPE

The new flexible 5.5 x 65 intubation video endoscope from KARL STORZ sets a new direction for airway management. The convenient 4:3 rectangular image format provides a better overview of the working area. Similar to the C-MAC® video laryngoscope, the 5.5 x 65 scope delivers clear, pixel-free images without a Moiré pattern. The flexible intubation endoscope can be directly connected to the C-MAC® monitor. This enables immediate changeover to the video laryngoscope, if required. The flexible 5.5 x 65 intubation video endoscope is a further component within the C-MAC® system.

8-12

FIVE – Flexible Intubation Video Endoscope for C-MAC®

NEW

KARL STORZ — ENDOSKOPE

Special Features:

- **Compatible with C-MAC® monitor and C-HUB™**
- **Compact design**
- **Ergonomically designed handle**
- **Lightweight at 385 g**
- **High image resolution**
- **Video imaging in 4:3 format**
- **Possible to exchange components within seconds**
- **Integrated LED light source**
- **Suitable and validated for the following low-temperature reprocessing methods up to max. 60 °C: manual/machine cleaning and disinfection, sterilization with Sterrad® (100S, NX, 100NX) and EtO gas; High-Level Disinfection (HLD) acc. to US standards**

11301 BNX

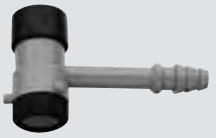
11301 BNX **Flexible Intubation Video Endoscope 5.5 x 65,**
CMOS technology, with suction valve, for use with C-MAC® Monitor 8402 ZX-1 and C-HUB™ **20** 2901 01

Deflection up/down:	140°/140°
Direction of view:	0°
Angle of view:	85°
Working length:	65 cm
Total length:	93 cm
Working channel inner diameter:	2.3 mm
Distal tip outer diameter:	5.5 mm

8-12

29100 **Plug,** for LUER-Lock connector for cleaning, **black, autoclavable,** package of 10

11301 CD1 **Irrigation Adaptor,** for machine cleaning, reusable, for Flexible Intubation Video Endoscope 11301 BNX



11301 CE1 **Suction Valve,** for single use, package of 20, for use with Flexible Intubation Video Endoscope 11301 BNX

11301 CFX **Tube Holder,** for use with Flexible Intubation Video Endoscope 11301 BNX

27677 FV **Case**

11025 E **Pressure Compensation Cap,** for ventilation during gas sterilization

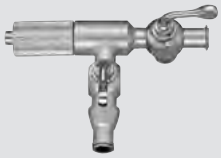
13242 XL **Leakage Tester,** with bulb and manometer

11276CL/10 **Long Cleaning Brush,** for working channel 1.2 – 1.7 mm, length 110 cm

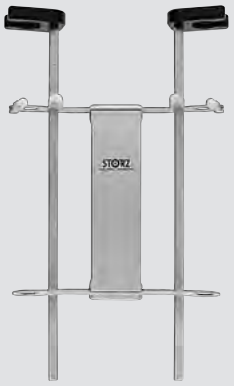
8401 YZ **Protection Cap,** for the C-MAC® video laryngoscope and electronic module, to protect plug contact during reprocessing, cap is reusable

8-12

Optional Accessories:

	11001 KL	**Biopsy Forceps,** flexible, spoon-shaped, round, double action jaws, diameter 1.8 mm, working length 120 cm
	11002 KS	**Grasping Forceps,** flexible, alligator jaws, double action jaws, diameter 1.8 mm, working length 120 cm
	11301 CA	**Leaflet Valve,** for single use, package of 20
	11301 CB1	**Suction Valve,** reusable, for use with Flexible Intubation Video Endoscope 11301 BNX
	6927691	**Adaptor for Two-Way Stopcock,** LUER-Lock, with O_2 tube connection
	600007	**LUER-Lock Tube Connector,** male, tube diameter 6 mm
	39402 AS	**Plastic Container for Flexible Endoscopes,** specially suited for gas and hydrogen peroxide (Sterrad® NX and 100 NX) sterilization and storage, for use with one flexible endoscope, external dimensions (w x d x h): 21.6" X 6.7" X 3.6"

9700 GCX



9700 SH

9700-CLP

9700 GCX	**Stand,** with storage basket, for C-MAC® monitor, for use with 9700-CLP Clamp
9700-CLP	**Clamp,** for fixation of C-MAC® monitor to stand, for use with Monitors 8401 ZX/8402 ZX-1
9700 SH	**Holder,** attaches to 9700 GCX Stand and accommodates 2 flexible or semirigid intubation endoscopes, for use with 9700TUBE/10 clear protection tubes
9700 BA	**Basket,** additional, with installation set for 9700 GCX Stand
9700 CM-MAT	**Mat,** blue silicone, with small diamond grid for 9700 GCX Stand and wire basket
9700TUBE/10	**Tubes,** clear plastic protection, for single use, 10/pkg

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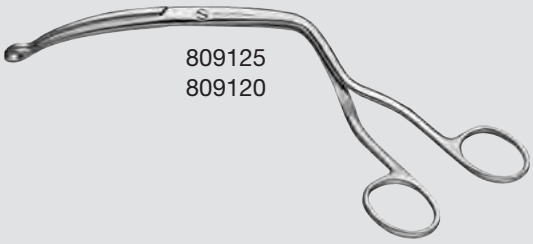


809125
809120

8402 YD

8402 YD-1

8402 YD-2

39501 LC2

8401 YZ

8402 YD-3

	8402 YD*	**Protective Bag,** blue, for C-MAC® system, made of water-resistant and sturdy material, washable, separate compartments for the monitor and two C-MAC® video laryngoscopes with electronic module
	8402 YD-1*	**Same, red**
	8402 YD-2*	**Same, orange**
	8402 YD-3*	**Same, NATO-olive**
	809125	MAGILL **Forceps,** modified by BOEDEKER, length 25 cm, suitable for endoscopic foreign body removal, for use with video laryngoscopes size 2 – 4
NEW	809120	MAGILL **Forceps,** for children, modified by BOEDEKER, length 20 cm, for use with video laryngoscopes size 1 and 2
	39501 LC2	**Wire Tray for Cleaning, Sterilization and Storage** for two C-MAC® and D-BLADE video laryngoscope blades incl. electronic module, with holder for fixing and sealing electrical connections, external dimensions (w x d x h): 260 x 120 x 170 mm
	8401 YZ	**Protection Cap,** for the C-MAC® video laryngoscope and electronic module, to protect plug contact during reprocessing, cap is reusable

8-12

*** Crash test carried out by Furtwangen University of Applied Sciences (Germany): C-MAC® system in a protective bag dropped from a height of 5 – 9 meters showed no noteworthy damage.**

Please note: The instruments displayed are not included in the sterilization and storage tray.

C-CAM™ and C-HUB™

Nothing could be easier!

C-CAM™ transforms the C-MAC® video laryngoscope into an all-round system unit for complete airway management. The C-MAC® monitor is at the core of all imaging systems. C-CAM™ is a high-grade CMOS camera with VGA resolution which can be connected to all KARL STORZ endoscopes with eyepieces. Illumination is ensured through the Power-LED battery light sources. Consequently, this is the first battery-powered video system to guarantee high-quality documentation. KARL STORZ has once again proven that high quality and mobility are not mutually exclusive.

The C-HUB™ is the interface for computer and/or monitor connectivity. The signal from the front end is transmitted directly to a computer or monitor with the aid of the C-HUB™. The enhanced output can be directly linked to any computer via a USB/S-VHS connection. Thanks to the safety offered by galvanic isolation in the C-HUB™, medical products can now be connected to non-medical products (e.g. computer/monitor).

C-HUB™ is the perfect signal converter from C-MAC®/C-CAM™ to USB or S-Video.

8-12

20 2901 32/**20** 2901 31

20 2901 32 **C-CAM™ Camera Head,** 8-pin, one-chip CMOS camera head, resolution 640 x 480, focal length f = 20 mm, compatible with C-HUB™ **20** 2901 01 and C-MAC® 8402 ZX-1

20 2901 31 **C-CAM™ Camera Head,** 6-pin, one-chip CMOS camera head, resolution 640 x 480, focal length f = 20 mm, compatible with C-MAC® 8401 ZX

20 2901 01

20 2901 01 **C-HUB™ Camera Control Unit,** for use with C-CAM™ **20** 2901 32, Electronic Module 8402 X or compatible CMOS video endoscopes, Interfaces: USB 2.0, S-Video output (NTSC), power socket

including:

C-HUB™ Power Supply

S-Video (Y/C) Connecting Cable

USB Connecting Cable

8-12

Components/Spare Parts see chapter 7

BRONCHOSCOPES AND TRACHEOSCOPES FOR FOREIGN BODY REMOVAL

KARL STORZ — ENDOSKOPE

Rigid Tracheo-Bronchoscopy for Foreign Body Extraction

Rigid endoscopy is an indispensable and accepted technique for removing solid foreign bodies (FB) from the central airway. The acute aspiration of foreign bodies lodged in the lumen is potentially life-threatening. Foreign body aspiration occurs most frequently in young children and the elderly. Of the broad spectrum of FB, foodstuffs are most commonly aspirated. A distinction is made between organic, inorganic, radiopaque and non-radiopaque FB.

Characteristic of foreign body aspiration is a sudden fit of coughing and asphyxiation followed by respiratory distress or an asymptomatic interval. FB may lodge in the larynx, trachea or bronchi, however, they can also approach the bifurcation of the trachea. The exchange of gas is affected to a greater or lesser degree. Anamnesis, a clinical examination or an imaging procedure leads to diagnosis. An esophageal foreign body should be ruled by differential diagnosis.

If the presence of a FB in the airway is confirmed, rigid endoscopy should be mainly employed, especially in children, patients having difficulty breathing, or for retrieving a FB which is large, sharp, capable of expanding or multiple FBs. If the presence of a FB cannot be confirmed, diagnosis can be backed up or dismissed either by means of a flexible fiberbronchoscope (FFB) requiring topical anesthesia or a standard larynx mask under general anesthesia.

Primary FB extraction with the FFB is justified in the case of a small FB, stable gas exchange and available instrumentation. If the FFB is inserted through the rigid endoscope tube, both techniques ideally complement each other, especially in the case of peripheral FB localization. Even when there are factors against the use of rigid endoscopy (instable/immobile neck, complete lockjaw), the FFB is still the instrument of choice, if necessary in conjunction with invasive measures such as surgical tracheotomy. Thoracic surgical interventions are the exception and are usually necessary in the case of complications caused by a chronic FB.

For laryngeal or tracheal FB localization, the rigid emergency tracheoscope or another tracheoscope of a suitable size and length is employed. The rigid bronchoscope, which has side vents on the lower end of the scope to aid the contralateral approach to ventilation, is suitable for retrieving a FB lodged in the lower tracheal and broncial areas due to its length.

Any rigid endoscope that can be positioned beneath the glottis can function as a stable working and ventilation channel and, thus, stabilize the airway. In comparison to a FFB inserted via a tracheal tube, the qualitatively better HOPKINS® telescopes used in conjunction with optical forceps are suitable. The wide range of instruments available allows precise, atraumatic, effective endoscopy without pressure of time. The suction capacity is unmatched.

In rigid endoscopy, an adapted Total Intravenous Anesthesia (TIVA) with appropriate standard monitoring is recommended for patients of any age group. The Klein endoscope model – regardless of the respiration method used – enables respiratory monitoring, primarily as capnography, thus offering repiration control not previously feasible. Depending on the respiration procedure used (manual positive pressure ventilation, automatic low or high frequency jet ventilation), simultaneous handling of instruments and ventilation is possible. Rigid tracheo-bronchoscopy in children requires great caution and skill.

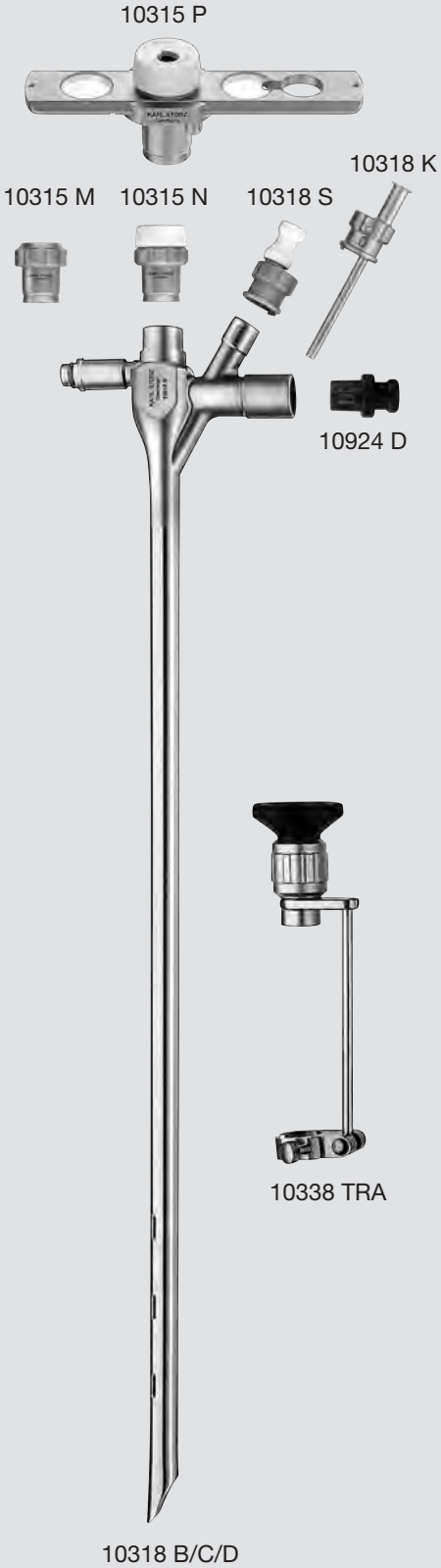
The anesthesiologist experienced in upper airway management and FFB is predestined to learn the skills necessary to handle the “rigid scope” from colleagues in other specialist disciplines. The emergency tracheoscope (intubation tracheoscope, “emergency tube”) or another rigid endoscope is considered to be the ultima ratio in the “cannot intubate – cannot ventilate” situation, if the larynx mask or combitube is not effective, or prior to invasive airway access (coniotomy).
(References with author)

R. GOTTSCHALL, M. D.,
Klinik für Anästhesiologie und Intensivtherapie,
Klinikum der Friedrich-Schiller-Universität, Jena,
Germany

1-03

Universal Bronchoscopes for Adults

Standard model with fiber optic light carrier for distal illumination



	10318 B	**Universal Bronchoscope,** with Fiber Optic Light Carrier 10318 L, size 8.5, length 43 cm
	10318 C	**Same,** size 7.5
	10318 D	**Same,** size 6.5
	10315 M	**Glass Window Plug**
	10315 N	**Rubber Telescope Guide**
	10315 P	FLUVOG **Adaptor,** with sliding glass window plug, sealing cap, notched lens and keyhole opening, movable
	10318 K	**Injection Cannula,** for positive pressure assisted ventilation system, LUER-Lock, outer diameter 3.5 mm
	10318 S	**Instrument Guide,** for suction catheter
	10338 TRA	**Adjustable Magnifier, autoclavable,** swing-away type, with ring adaption
	10924 D	**Adaptor,** for respirator
NEW	10924 DL	**Adaptor,** for respirator, long version

1-99

HOPKINS® Telescopes and Optical Forceps

for removal of foreign bodies

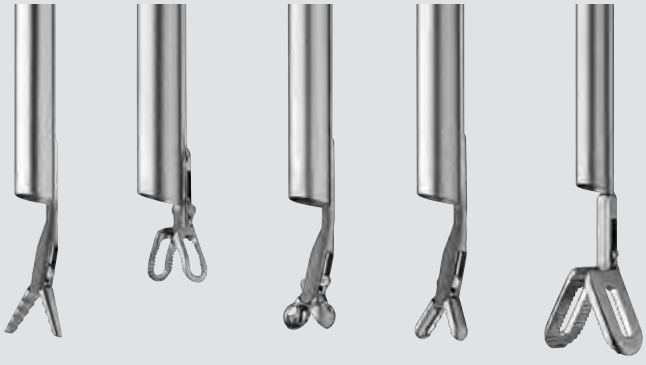
KARL STORZ — ENDOSKOPE

Special Features:

- **The jaws of the forceps and the region of biopsy are well visualized prior to and during the procedure**
- **Foreign bodies can now be removed quickly under optical control**
- **With anti-fogging device for the telescope**

For use with bronchoscopes for adults 10318 B/C/D and 10318 BP/CP/DP:

	10320 AA	**HOPKINS® Straight Forward Telescope 0°,** diameter 5.5 mm, length 50 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green
	10320 BA	**HOPKINS® Forward-Oblique Telescope 30°,** diameter 5.5 mm, length 50 cm, **autoclavable,** fiber optic light transmission incorporated, color code: red
	10350 HF	**Optical Forceps,** alligator, for hard foreign bodies, large jaws, with spring-action handle
	10350 KF	**Optical Forceps,** for peanuts and soft foreign bodies, with spring-action handle
	10350 L	**Optical Forceps,** spoon-shaped, round, for biopsy
	10350 U	**Optical Forceps,** universal, for biopsy, for the removal of foreign bodies and denatured tissue
NEW	10350 MS	**Optical Forceps,** large jaws, blunt, serrated, for removing large foreign bodies, for use with HOPKINS® Telescope 10320 AA

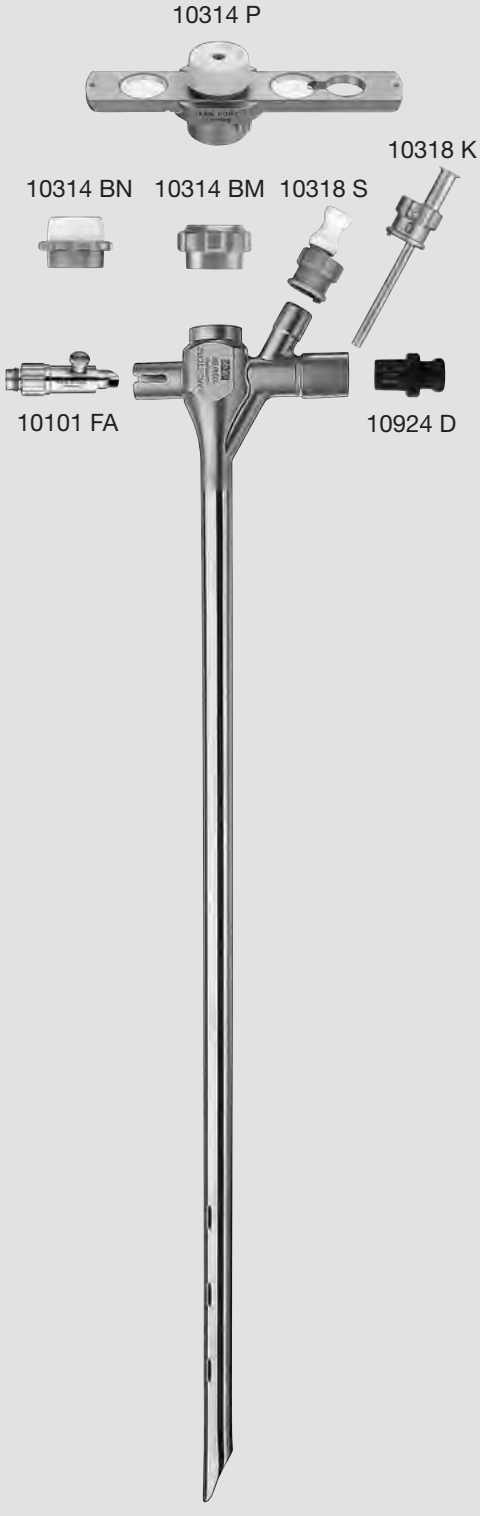


10350 HF 10350 KF 10350 L 10350 U 10350 MS

1-99$_3$

Universal Bronchoscopes for Adults

with proximal illumination



10318 BP/CP/DP

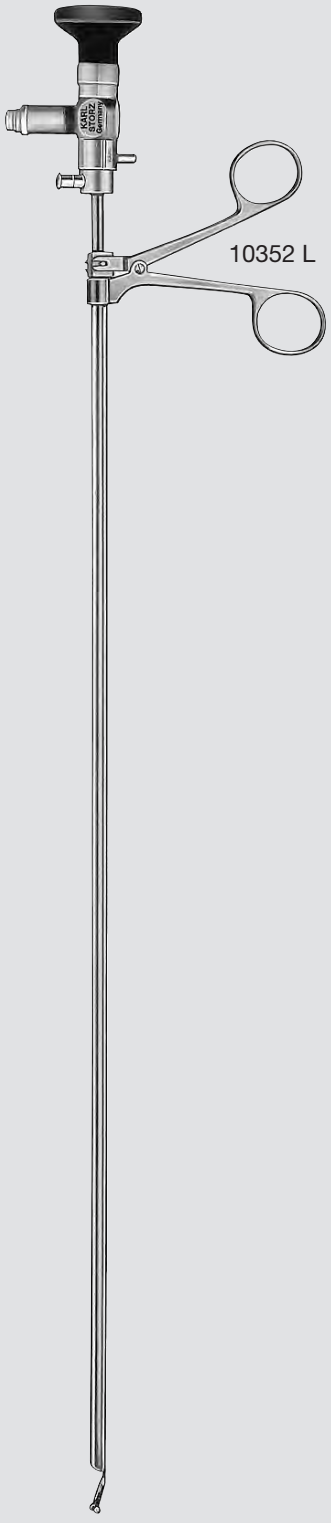
Special Features:

- **Absence of distal light carrier does not restrict inner diameter**
- **Prismatic Light Deflector 10101 FA inserted proximally ensures best illumination and enables full use of lumen through operating instruments**
- **Excellent view of operation area**
- **Smooth lumen allows insertion of flexible bronchoscopes**

	10318 BP	**Bronchoscope Tube Universal,** without distal fiber optic light carrier, for use with proximally insertable Prismatic Light Deflector 10101 FA, size 8.5, length 43 cm
	10318 CP	**Same,** size 7.5
	10318 DP	**Same,** size 6.5
	10101 FA	**Prismatic Light Deflector, autoclavable,** with connection to fiber optic light cable
	10314 BM	**Glass Window Plug**
	10314 BN	**Rubber Telescope Guide**
	10314 P	FLUVOG **Adaptor,** with observation window, cap with rubber seal and with window, adjustable
	10318 K	**Injection Cannula,** for positive pressure assisted ventilation system, LUER-Lock, outer diameter 3.5 mm
	10318 S	**Instrument Guide,** for suction catheter
	10924 D	**Adaptor,** for respirator
NEW	10924 DL	**Adaptor,** for respirator, long version

3-04$_1$

Optical Forceps



Special Features:

- **The jaws of the forceps and the region of biopsy are well visualized prior to and during the procedure.**
- **Foreign bodies can now be removed quickly under optical control.**
- **The spring-action handle of the grasping forceps prevents excess pressure being applied to the foreign body.**
- **The depth of cut during biopsy is much easier to assess.**

For use with HOPKINS® Telescope 10328 AA and Universal Bronchoscopes 10318 B – DP, size 8.5 to 6.5

	10328 AA	**HOPKINS® Straight Forward Telescope 0°,** diameter 4.5 mm, length 50 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green
	10352 H	**Optical Forceps,** alligator, for hard foreign bodies
NEW	10352 KF	**Optical Forceps,** for peanuts and soft foreign bodies, with spring-action handle
	10352 L	**Optical Forceps,** spoon-shaped, round, for biopsy
	10352 U	**Optical Forceps,** universal, for biopsy, for removal of foreign bodies and denatured tissue

10352 H | 10352 KF | 10352 L | 10352 U

4-12

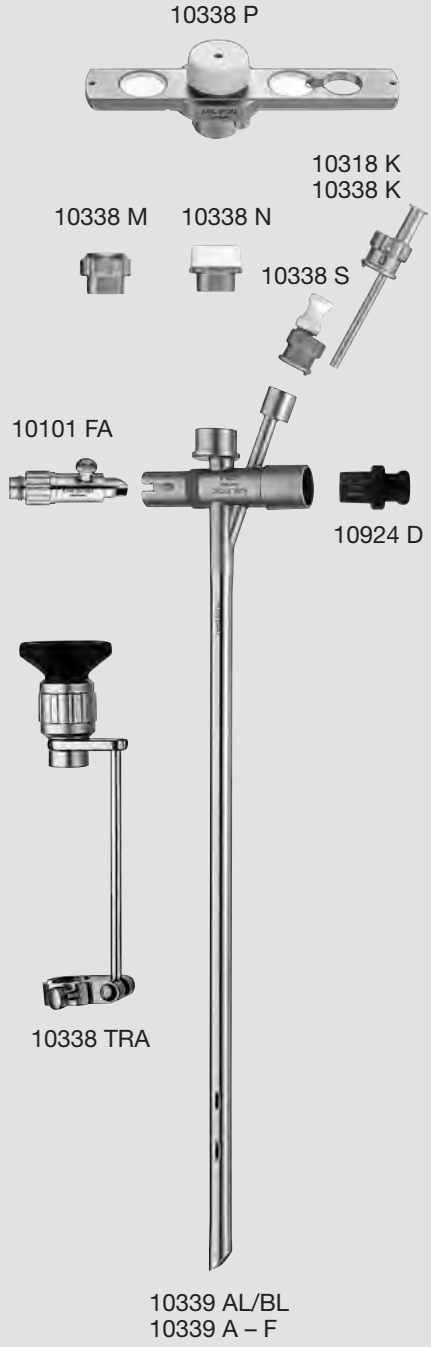
Pediatric Bronchoscopes

for proximal illumination

KARL STORZ — ENDOSKOPE

Special Features:

- **Absence of distal light carrier does not restrict inner diameter**
- **Prismatic Light Deflector 10101 FA inserted proximally ensures best illumination and enables full use of lumen through operating instruments**
- **Excellent view of operation area**
- **Lateral channel for introducing suction catheters and fine instruments**



10339 A	DOESEL-HUZLY **Bronchoscope,** size 6, length 30 cm
10339 B	**Same,** size 5
10339 BB	**Same,** size 4.5
10339 C	**Same,** size 4
10339 G	**Same,** size 3.7
10339 CD	**Same,** size 3.5
10339 EEE	**Same,** size 3
10339 CC	DOESEL-HUZLY **Bronchoscope,** size 4, length 26 cm
10339 GG	**Same,** size 3.7
10339 DD	**Same,** size 3.5
10339 EE	**Same,** size 3
10339 D	DOESEL-HUZLY **Bronchoscope,** size 3.5, length 18.5 cm
10339 E	**Same,** size 3
10339 F	**Same,** size 2.5
10101 FA	**Prismatic Light Deflector, autoclavable,** with connection to fiber optic light cable
10338 M	**Glass Window Plug**
10338 N	**Rubber Telescope Guide,** for use with telescopes and optical forceps
10338 P	FLUVOG **Adaptor,** with sliding glass window plug, sealing cap, notched lens and keyhole opening, movable
10338 S	**Guide Piece,** for suction catheter, short, bronchoscope for children and infants
10338 TRA	**Adjustable Magnifier, autoclavable,** swing-away type, with ring adaption
10924 D	**Adaptor,** for respirator
NEW 10924 DL	**Adaptor,** for respirator, long version
10318 K	**Injection Cannula,** for positive pressure assisted ventilation system, LUER-Lock, outer diameter 3.5 mm
10338 K	**Injection Cannula,** for positive pressure assisted ventilation system, LUER-Lock, outer diameter 2.7 mm, for use with Bronchoscopes 10339 E/EE/F

1-99₂

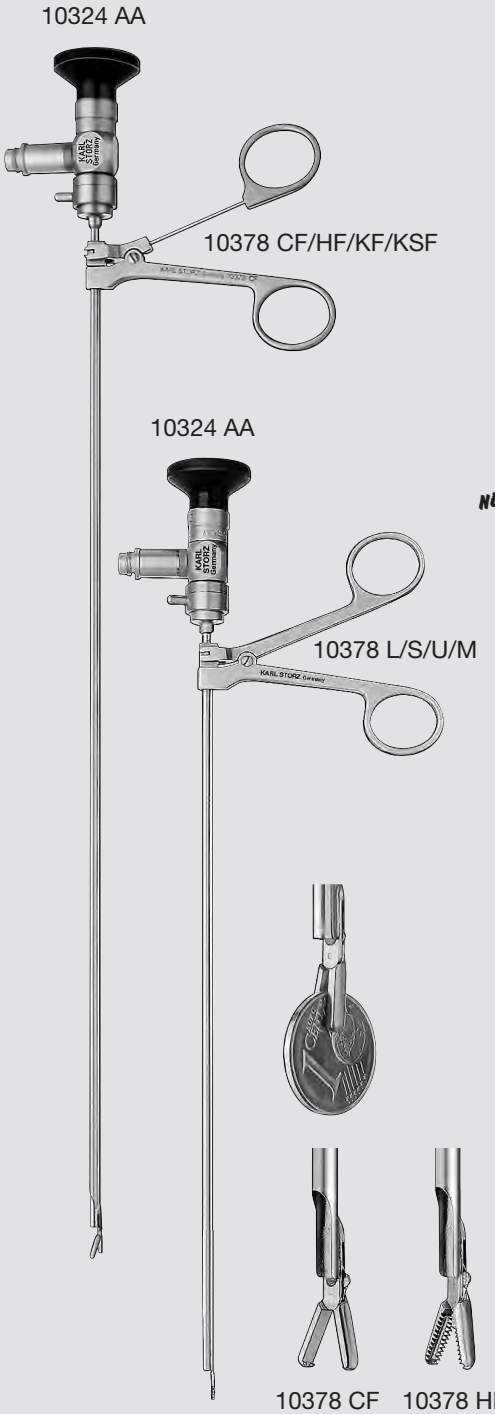
Optical Forceps and Scissors

for Pediatric Bronchoscopes size 6 – 3.5, length 30 cm – 18.5 cm

KARL STORZ — ENDOSKOPE

Special Features:

- **Newly designed forceps enable removing of foreign bodies under precise optical control not previously possible**
- **Small size of forceps allows them to be introduced through pediatric bronchoscopes as of size 3.5 and larger in lengths ranging from 18.5 up to 30 cm**
- **Foreign bodies can be removed quickly and with utmost safety**
- **Better assessment of the depth of cut when taking biopsies**



For use with HOPKINS® Telescope 10324 AA and Bronchoscopes 10339 A – CD

10324 AA	**HOPKINS® Straight Forward Telescope 0°,** diameter 2.9 mm, length 36 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green
10378 CF	**Optical Forceps,** 2 x 2 teeth, for grasping coins and flat foreign bodies, with spring-action handle
10378 HF	**Optical Forceps,** alligator, for grasping hard foreign bodies, with spring-action handle
10378 KF	**Optical Forceps,** with KILLIAN bean jaws, for grasping peanuts and soft foreign bodies, with spring-action handle
NEW 10378 KSF	**Optical Forceps,** VANCOUVER model, for grasping peanut fragments and soft foreign bodies, with spring-action handle
10378 L	**Optical Forceps,** spoon-shaped, for biopsy
10378 S	**Optical Scissors**
10378 U	**Optical Forceps,** universal, for biopsy and foreign bodies removal
10378 M	**Optical Forceps,** spoon-shaped, oval, for biopsy, large model

10378 CF | 10378 HF | 10378 KF | 10378 KSF | 10378 L | 10378 S | 10378 U | 10378 M

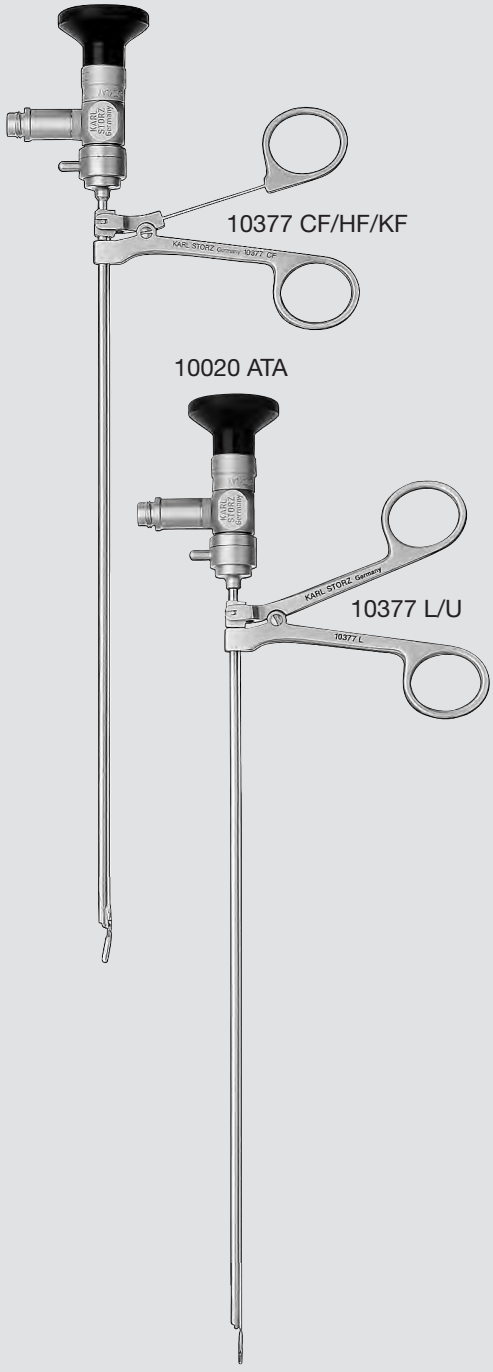
3-04$_2$

Optical Forceps

for Pediatric Bronchoscopes size 4 – 3.5, length 26 cm – 18.5 cm

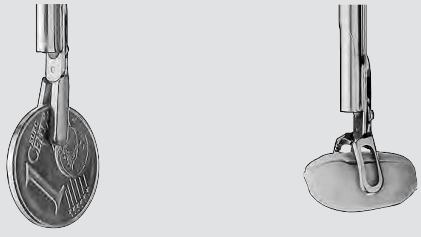
Special Features:

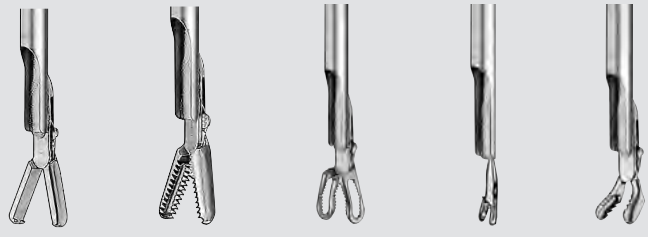
- **Newly designed forceps for hard and soft foreign bodies enable removal under precise optical control not previously possible**
- **Small size of forceps allows them to be introduced through pediatric bronchoscopes as of size 3.5 cm and larger in lengths of 26 cm – 18.5 cm**
- **Foreign bodies can be removed quickly and with utmost safety**
- **Better assessment of the depth of cut when taking biopsies**



For use with HOPKINS® Telescope 10020 ATA and Bronchoscopes 10339 CC/GG/DD/D

10020 ATA	**HOPKINS® Straight Forward Telescope 0°,** diameter 2.9 mm, length 30 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green
10377 CF	**Optical Forceps,** 2 x 2 teeth, for grasping coins and flat foreign bodies, with spring-action handle
10377 HF	**Optical Forceps,** alligator, for grasping hard foreign bodies, with spring-action handle
10377 KF	**Optical Forceps,** with KILLIAN bean jaws, for grasping peanuts and soft foreign bodies, with spring-action handle
10377 L	**Optical Forceps,** spoon-shaped, for biopsy
10377 U	**Optical Forceps,** universal, for biopsy and foreign bodies removal





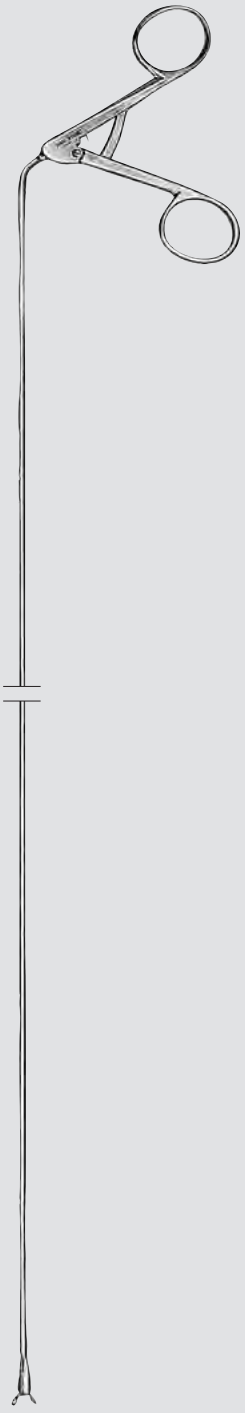
10377 CF 10377 HF 10377 KF 10377 L 10377 U

2-12

Bronchoscopic Forceps

double action jaws

KARL STORZ — ENDOSKOPE



For use with Bronchoscopes 10318 B/C/D and 10318 BP/CP/DP:

Sheath diameter 2.5 mm, working length 50 cm

10370 H	**Forceps,** alligator, for hard foreign bodies, double action jaws, sheath diameter 2.5 mm, working length 50 cm
10370 J	**Same,** pointed, serrated, for coins and flat foreign bodies
10370 K	**Same,** for peanuts and soft foreign bodies
10370 L	**Same,** spoon-shaped, round, for biopsy
10370 U	**Same,** universal, for biopsy and foreign bodies removal

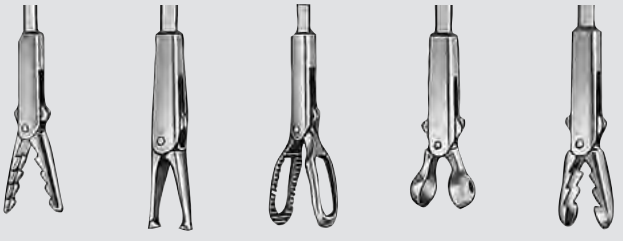
For use with Bronchoscopes 10339 A – F and 10341 A/CD:

Forceps with sheath diameter 2 mm, working length 35 cm, for use with Bronchoscopes 10339 A – EE

10371 H	**Forceps,** alligator, for hard foreign bodies, double action jaws, sheath diameter 2 mm, working length 35 cm
10371 J	**Same,** pointed, serrated, for coins and flat foreign bodies
10371 K	**Same,** for peanuts and soft foreign bodies
10371 L	**Same,** spoon-shaped, round, for biopsy
10371 U	**Same,** universal, for biopsy and foreign bodies removal

Forceps with sheath diameter 2 mm, working length 45 cm, for use with Bronchoscopes 10339 A – F

10371 HL	**Forceps,** alligator, for hard foreign bodies, double action jaws, sheath diameter 2 mm, working length 45 cm
10371 JL	**Same,** pointed, serrated, for coins and flat foreign bodies
10371 KL	**Same,** for peanuts and soft foreign bodies
10371 LL	**Same,** spoon-shaped, round, for biopsy
10371 UL	**Same,** universal, for biopsy and foreign bodies removal



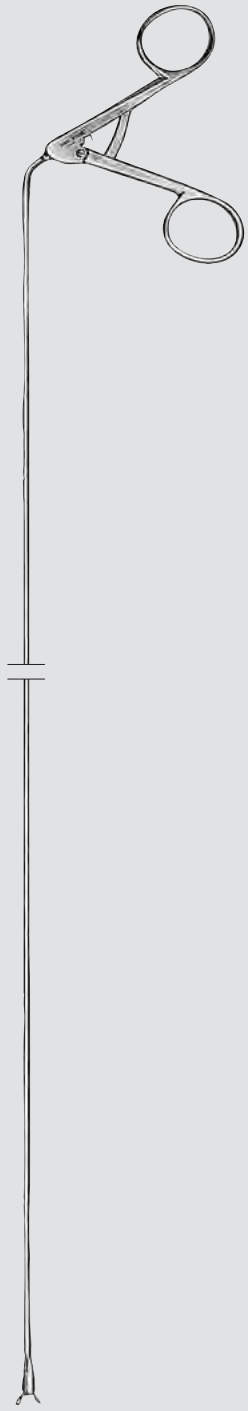
10370 H 10371 H 10371 HL	10370 J 10371 J 10371 JL	10370 K 10371 K 10371 KL	10370 L 10371 L 10371 LL	10370 U 10371 U 10371 UL

1-02$_2$

Bronchoscopic Forceps

double action jaws

KARL STORZ — ENDOSKOPE



Forceps with sheath diameter 1.5 mm, working length 35 cm, for use with Bronchoscopes 10339 A – F

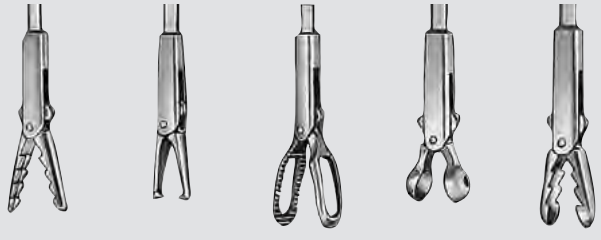
Sheath diameter 1.5 mm, working length 35 cm

10372 HL	**Forceps,** alligator, for hard foreign bodies, double action jaws, sheath diameter 1.5 mm, working length 35 cm
10372 JL	**Same,** pointed, serrated, for coins and flat foreign bodies
10372 KL	**Same,** for peanuts and soft foreign bodies
10372 LL	**Same,** spoon-shaped, round, for biopsy
10372 UL	**Same,** universal, for biopsy and foreign bodies removal

Forceps with sheath diameter 1.5 mm, working length 25 cm, for use with Bronchoscopes 10339 D/E/F

Sheath diameter 1.5 mm, working length 25 cm

10372 H	**Forceps,** alligator, for hard foreign bodies, double action jaws, sheath diameter 1.5 mm, working length 25 cm
10372 J	**Same,** pointed, serrated, for coins and flat foreign bodies
10372 K	**Same,** for peanuts and soft foreign bodies
10372 L	**Same,** spoon-shaped, round, for biopsy
10372 U	**Same,** universal, for biopsy and foreign bodies removal

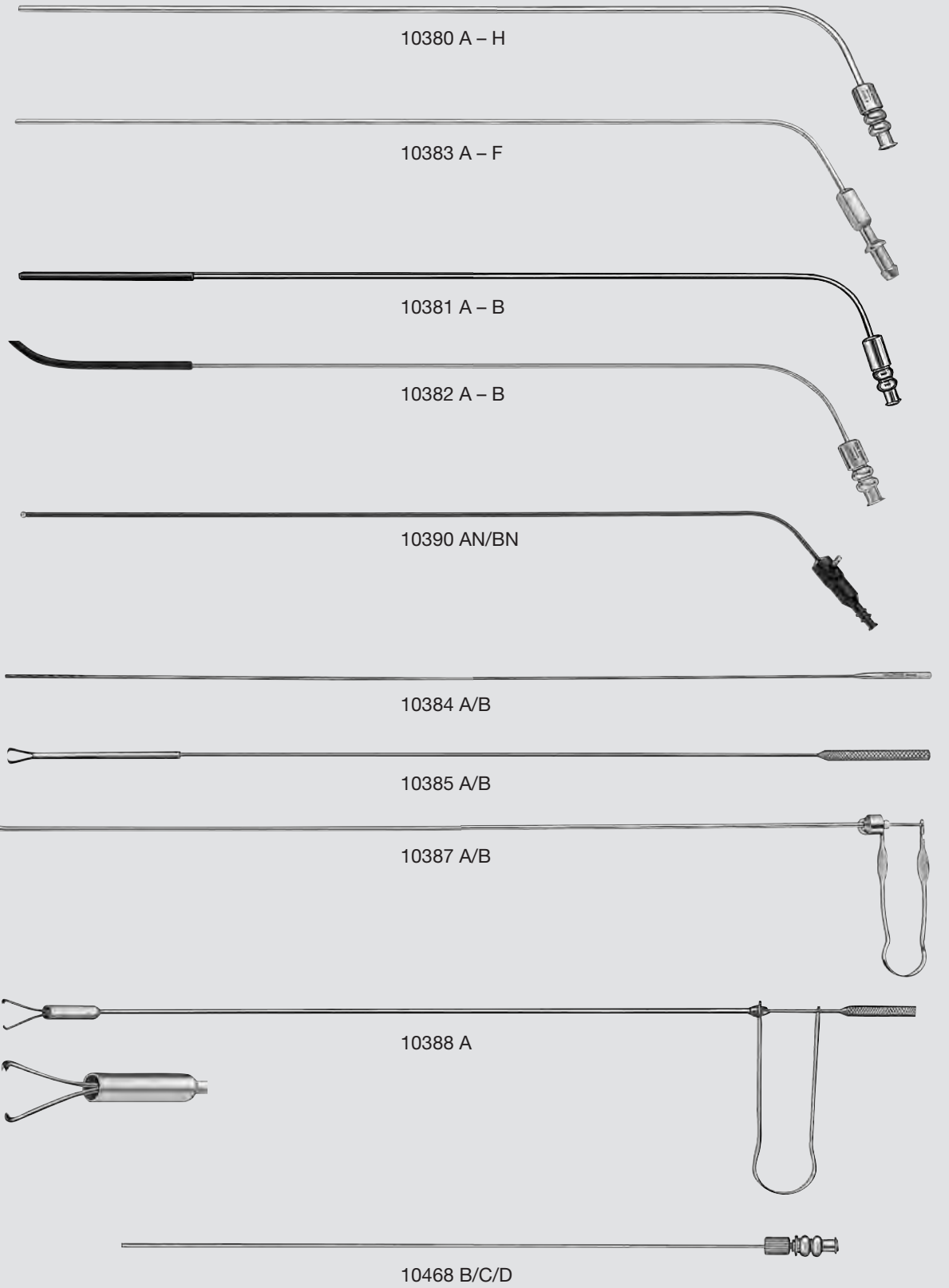


10372 HL 10372 H	10372 JL 10372 J	10372 KL 10372 K	10372 LL 10372 L	10372 UL 10372 U

2-09₁

Accessories for Bronchoscopy

Suction Tubes, Cotton Carriers, Sponge Holders and Catheters



Description of Instruments see page 111

1-02

Working length 50 cm

10380 A	**Suction Tube,** diameter 4 mm
10380 D	**Same,** diameter 2.5 mm
10380 H	**Same,** diameter 5 mm
10383 A	**Suction Tube,** with cut-off hole, diameter 4 mm
10381 A	**Suction Tube,** with rubber tip, straight, diameter 4 mm
10382 A	**Same,** curved
10390 AN	**Coagulating Suction Tube,** insulated, with connector pin for unipolar coagulation, diameter 4 mm
10384 A	**Cotton Applicator**
10385 A	**Sponge Holder**
10387 A	**Sponge Holder,** with spring handle
10388 A	**Sponge Holder,** for sterile smears

Working length 35 cm

10380 AK	**Suction Tube,** diameter 4 mm
10380 B	**Same,** diameter 3 mm
10380 CB	**Same,** diameter 2 mm
10383 B	**Suction Tube,** with cut-off hole, diameter 3 mm
10383 BL	**Same,** diameter 5.5 mm
10381 B	**Suction Tube,** with rubber tip, straight, diameter 2 mm
10382 B	**Same,** curved
10390 BN	**Coagulating Suction Tube,** insulated, with connector pin for unipolar coagulation, diameter 3 mm
10384 B	**Cotton Applicator**
10385 B	**Sponge Holder**
10387 B	**Sponge Holder,** with spring handle

Working length 30 cm

10383 DD	**Suction Tube,** with cut-off hole, diameter 2 mm
10383 F	**Same,** diameter 3 mm

Working length 25 cm

10380 C	**Suction Tube,** diameter 2 mm
10383 C	**Suction Tube,** with cut-off hole, diameter 2 mm
10383 CC	**Same,** diameter 1 mm
10383 D	**Same,** diameter 3 mm
10383 E	**Same,** diameter 4 mm

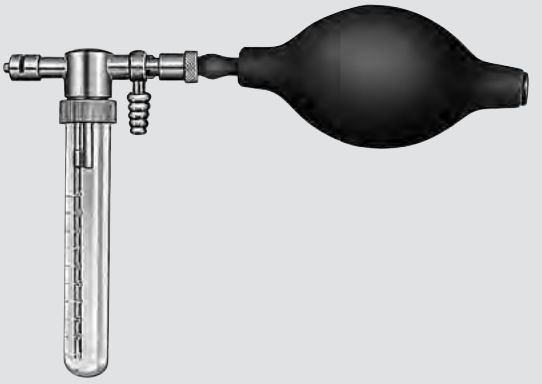
For use through the working channel under control of HOPKINS® telescope:

10468 B	**Suction Catheter,** 7 Fr., with Adaptor 10479 B
10468 C	**Same,** 6 Fr., with Adaptor 10479 C
10468 D	**Same,** 4 Fr., with Adaptor 10479 F

4-12

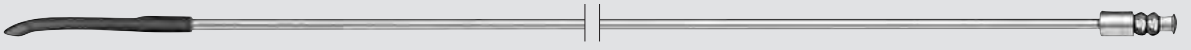
10432 ED

10432 N/T



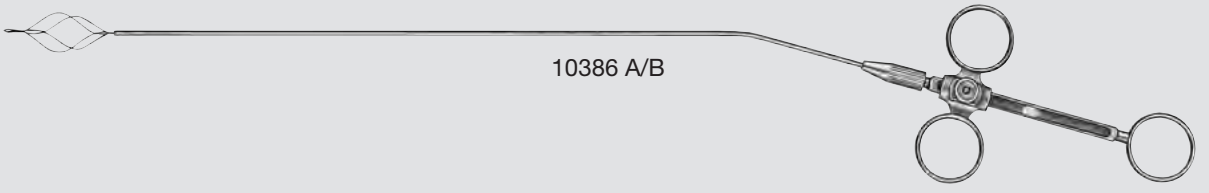
10434

10432 N	**Aspirator,** for collecting secretions, with cut-off hole, with Spare Glass 10432 E, can be connected to suction tubes or suction catheters
10432 T	**Same,** without cut-off hole
10432 ED	**Collection Device,** plastic, for single use, with lid, package of 100, for use with HUZLY Aspirator and Bronchus Irrigator 10434 and Intermediate Ring 10434 Z
10434	HUZLY **Aspirator and Bronchus Irrigator,** with Graduated Container 10455 A and Rubber Bulb 437000. After switching manifold from “Irrigation” to “Suction”, the injected irrigation fluid is immediately withdrawn again together with the bronchial secretion

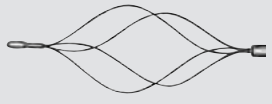


10434 A/B

10434 A	**Suction Tube,** diameter 4 mm, length 50 cm, for use with HUZLY Aspirator and Bronchus Irrigator 10434
10434 B	**Same,** diameter 3 mm, length 35 cm



10386 A/B



10386 A	**Foreign Body Basket,** with ring handle, working length 50 cm
10386 B	**Same,** working length 35 cm

1-02

Emergency Tracheoscope

KARL STORZ — ENDOSKOPE

Rigid Intubation Tracheoscope

The intubation tracheoscope (emergency tracheoscope, "emergency tube", ventilating laryngoscope) is regarded as a standard instrument in Ear, Nose, and Throat medicine for various clinical situations and patients of every age group (Meyer 1995; Blazon and Schuss 2001). It combines the features of a direct, straight larnygoscope blade and a rigid tracheoscope. A battery-operated handle provides illumination at the distal end, thus enabling operation without an AC power connection. A cold light source (8546 F) is optional and qualitatively better. The lateral approach, in which a short tube (together with the norm connector) is attached to the anesthesia circuit system or respiratory balloon, enables ventilation as soon as the proximal end of the tube is sealed. Possible leakage can be compensated for by a high flow of fresh gas or tamponage of the pharynx.

Handling is similar to that of the straight intubation blade. The instrument can be used with both hands. An extreme lateral (retromolar) passage through the oropharynx allows faster access to the larynx and relieves pressure on the maxillary region. Following visualization of the glottis, passage through the vocal cords as far as the tracheal lumen is achieved under visual control by rotating the angulated tube by 90° in axis. This procedure can be practised on a intubation trainer or on elective patients.

The instrument has the following advantages and disadvantages:

The advantages are that it can be put to immediate use; requires little space in the oropharynx; allows permanent visual control; overcomes stenosis resulting from axial and tangential force; enables immediate ventilation once trachea is reached; permits the use of rigid forceps and suction tubes with a large diameter; provides the option of secondary intubation via airway exchange catheters; allows the combined use of rigid and flexible telescopes which can be viewed on video (expansion of field of view, binocular view, supervision); and ensures airway stabilization if tracheal intubation is obstructed (subglottal stent).

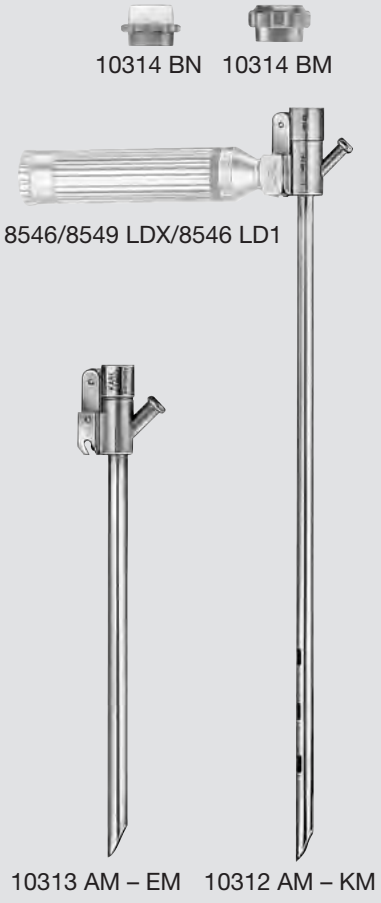
The disadvantages are the unaccustomed and restricted monocular field of view, potential injury and the general arguments against using the rigid scope. A potential risk of aspiration due to the absence of tracheal sealing does not seem particularly relevant to clinical practice.

Errors in airway management continue to be the main causes of serious complications (Krier and Runck 2002). Anesthesiologists are less familiar with the significance of the intubation tracheoscope in upper airway management, especially in "cannot intubate-cannot ventilate" situations. The domain of flexible fiberoptic intubation (elective awake intubation) in difficult airway management is undisputed. However, there are limitations which raise questions about the use of flexible instruments (respiratory emergency, limited view, if suction capacity is exceeded, or in the case of impossible intubation due to severe narrowing) which require the use of alternative procedures. Sudden, unpredicted, and unexpected difficult airways where neither intubation with conventional intubation aids, face masks and pharyngeal airway, nor larynx masks and combitubes achieve emergency oxygenation, are indications for coniotomy. A typical example is a distended supraglottal tumour (Henn-Beilharz 2001; Schwarzkopf et al 2001). If no anatomical landmarks are evident in the throat (perforating/blunt trauma, excessive soft tissue hematoma), a timely invasive procedure may fail. In the algorithim of unexpected difficult airway, the "rigid scope" should serve as an indication for temporary airway stabilization or as an alternative to or preceding (emergency) coniotomy and/or secondary tracheostomy to enable temporary translaryngeal stabilization for the purposes of oxygenation or ventilation. For these reasons, the intubation tracheoscope or any other suitable rigid tracheoscope can be recommended as a complementary instrument for airway management in fields other than ENT. In individual cases, coniotomy and/or surgical tracheostomy is thus avoidable.
(References with author)

R. GOTTSCHALL, M. D.,
Klinik für Anästhesiologie und Intensivtherapie,
Klinikum der Friedrich-Schiller-Universität, Germany

1-03i

Emergency Bronchoscopes, Emergency Tracheoscopes



10312 AM	**Emergency Bronchoscope,** with fiber optic light carrier, size 9, outer diameter 11.2 mm, length 40 cm
10312 DM	**Same,** size 7, outer diameter 9.2 mm, length 40 cm
10312 HM	**Same,** size 6, outer diameter 8 mm, length 30 cm
10312 JM	**Same,** size 5, outer diameter 7.5 mm, length 30 cm
10312 KM	**Same,** size 4, outer diameter 6.5 mm, length 20 cm
10313 AM	**Emergency Tracheoscope,** with fiber optic light carrier, size 9, outer diameter 11.2 mm, length 25 cm
10313 DM	**Same,** size 7, outer diameter 9.2 mm, length 20 cm
10313 EM	**Same,** size 5, outer diameter 7.5 mm, length 20 cm
10314 BM	**Glass Window Plug**
10314 BN	**Rubber Telescope Guide**
807520	**Adaptor for Ventilation**
8546	**Handle Sleeve,** ISO 7376, **autoclavable,** length 12 cm, for use with Battery Inserts 8546 A, 8546 LD, 8549 LD and cold light laryngoscopes
8546 A	**Battery Insert,** length 12 cm, with 2 Batteries 121306 S and Xenon Lamp 8546 XA
121306 S	**Batteries,** Baby-Cell, LR 14, for Battery Inserts 8544 A and 8546 A, package of 2

For use with Cold Light Fountain

8546 F	**Handle,** with connector pin for fiber optic light cable
495 NL	**Fiber Optic Light Cable,** diameter 3.5 mm, length 180 cm

Recommended HOPKINS® telescopes:

for 10312 AM/10312 DM: Telescopes 10320 AA/10320 BA

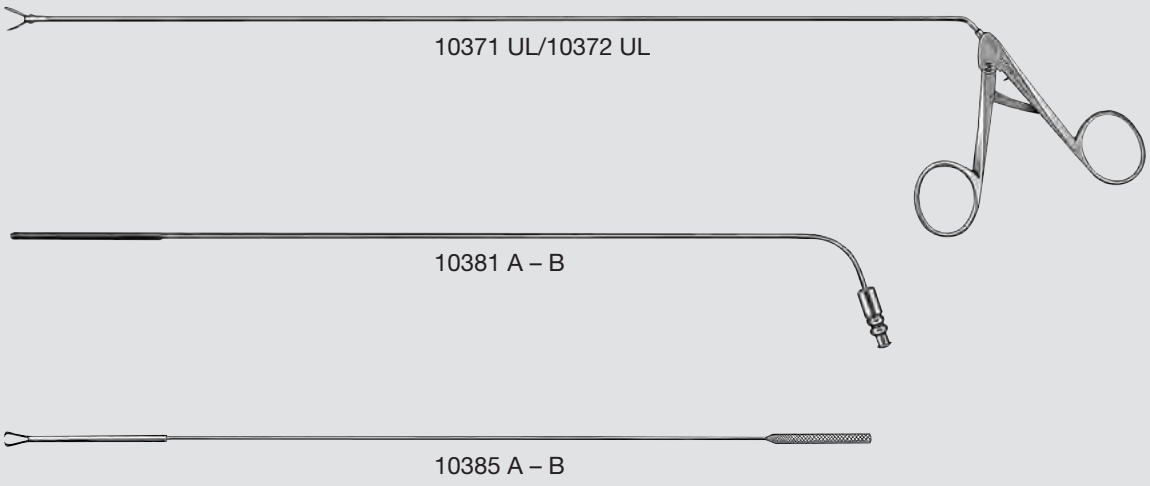
for 10312 HM/10312 JM: Telescopes 10324 AA/10324 BA

for 10312 KM: Telescope 10020 ATA

for 10313 AM/10313 DM/10313 EM: Telescope 10020 ATA

1-99

Emergency Bronchoscopes, Emergency Tracheoscopes



For Bronchoscopes and Tracheoscopes length 30 or 20 cm:

10372 UL	**Forceps,** universal, for biopsy and foreign bodies removal, double action jaws, sheath diameter 1.5 mm, working length 35 cm
10381 B	**Suction Tube,** straight, with rubber tip, diameter 2 mm, working length 35 cm
10385 B	**Sponge Holder,** working length 35 cm

Minimum Instrument Set for Bronchoscopes length 40 cm:

10371 UL	**Forceps,** universal, for biopsy and foreign bodies removal, double action jaws, sheath diameter 2 mm, working length 45 cm
10381 A	**Suction Tube,** straight, with rubber tip, diameter 4 mm, working length 50 cm
10385 A	**Sponge Holder,** working length 50 cm

4-12

Handles with LED Light Source

for Cold Light Laryngoscope Blades

KARL STORZ — ENDOSKOPE

Special Features:

- **Rechargeable lithium-ion batteries**
- **Extremely bright LED of more than 50 lm/> 100 klx**
- **Absolute white light due to LED technology (5500 K)**
- **Small handle with photo battery**
- **Special lens system allows optimal light adjustment at the blade connector**
- **LED provides a lifetime of more than 50,000 hours**
- **Burning time up to 240 min at 100% brightness**
- **Charging via inductive technology**
- **ISO 7376 compatible**

8546

8546 LD1

8549 LDX

8546 LE

	8546	**Handle Sleeve,** ISO 7376, **autoclavable,** length 12 cm, for use with Battery Inserts 8546 A, 8546 LD, 8549 LD and cold light laryngoscopes
	8546 LD1	**Battery Insert, rechargeable,** length 12 cm, for Handle Sleeve 8546, **with high-power LED,** 56 lm/> 100 klx, lithium-ion battery insert, burning time at 100% brightness 240 min, charging via Inductive Charging Unit 8546 LE
NEW	8549 LDX	**Battery Insert Set LED,** length 12 cm, for Handle Sleeve 8546 and cold light laryngoscopes, **with high-power LED,** > 56 lm/ >100 klx, burning time at 100% brightness > 120 min including: **Battery Insert,** high-power LED 2x **Battery,** Mignon-Cell, LR 06, 1.5 V **Cap**
	8546 LE	**Inductive Charging Unit,** for two battery inserts (8546 LD1, 8544 B, 8545 B, 8547 B), with fully integrated mains adaptor and power adaptor for EU, UK, USA and Australia, power supply 110 – 240 VAC, 50/60 Hz, **suitable for wipe disinfection**

4-12

Components/Spare Parts see chapter 7

INSTRUMENT CARTS

29005 BWK

29005 BWK **Basic Equipment Cart,**
rides on 4 antistatic dual wheels, 2 equipped with locking brakes, main switch in side boom, 1x drawer unit with lock, integrated cable conduit in both vertical beams, 2x horizontal cable conduits, one with cable manager, 1x set of non-sliding stands for units

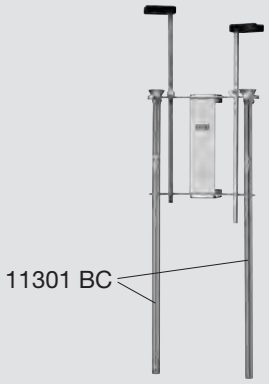
Dimensions:
Equipment cart: 530 x 1090 x 645 mm (w x h x d),
Shelf: 430 x 480 mm (w x d),
Caster diameter: 125 mm

4-12

Please note: The displayed instruments are not included with the instrument cart.

Accessories

for Instrument Cart 29005 BWK



29005 IFH

10330 BC

29005 KH

29005 IFH	**Holder for Flexible Endoscopes,** for mounting to standard tubes, incl. installation accessories
11301 BC	**ProShield Protective Tube,** for flexible telescopes, for single use, unsterile, distal closed, package of 10, for use with Holder for Flexible Endoscopes 29005 IFH
10330 BE	**Fixation Device,** for Holder 10330 BC/BD to Standard Equipment Rail 29003 GS, 25 x 10 mm
10330 BC	**Holder,** for BONFILS Retromolar Intubation Fiberscope 10330 B, made of plexiglass, distal open
29005 KH	**Camera Holder,** adjustable height, can be installed in T-grooves of leg columns, suitable for all KARL STORZ endoscopy cameras
29005 KHN	**Camera Mount,** for mounting to Standard Equipment Rail 29003 GS, suitable for all KARL STORZ endoscopy cameras

4-12

Accessories

for Instrument Cart 29005 BWK

29005 SKO

8401 YB

8402 ZX-1

29003 S

29005 SKO	**Drawer Unit with Lock,** load capacity max. 50 kg, dimensions: 430 x 125 x 480 mm (w x h x d), for Equipment Cart 29005 HNO/AN/BWK/GI/BGI/DRS
29003 S	**Irrigator Rod,** with 4 bottle hooks, for mounting to equipment cart series 29005, incl. two multifunctional holders, length 130 cm
29003 GS	**Standard Equipment Rail,** for mounting on side with equipment carts of series 29003 and 29005
ET03-0337088	**Pulley,** for mounting standard bars with diameter 25 mm, for use with Equipment Rail 29003 GS
29003 PBK	**Power Box,** socket board with 6 mains sockets, 6 grounding plugs for Equipment Carts 29005 HNO/AN/BGI/BWK
29003 TBK	**Isolation Transformer,** 230 VAC, 1200 VA, 6 special mains socket expulsion fuses, 6 grounding plugs, for Equipment Cart 29005 DRS/BGI/BWK/GI/HNO/AN

4-12

Instrument Cart NEW

20 0200 85

20 0200 85 **TROLL-E Airway Mobile Stand,** rides on 4 antistatic dual wheels, 2 equipped with locking brakes, for mounting monitors with VESA 75/100 connection, integrated cable conduit in vertical beam and cable manager, load capacity for monitor: max. 15 kg,
Dimensions:
Mobile stand: 670 x 1660 x 670 mm (w x h x d),
Caster diameter: 100 mm
Trolley is delivered unassembled.

including:

Subrack for Mobile Stand

Beam Module, with tube

Drawer

Equipment Rail

Cross Tube Adaptor

Stainless Steel Round Pipe, length 25 cm

4-12

Please note: The Monitor 9515 NB is recommended.
The displayed instruments are not included with the instrument cart.

Components/Spare Parts see chapter 7

Instrument Cart NEW

20 0200 86

20 0200 86 **TROLL-E C-MAC® Mobile Stand,** rides on 4 antistatic dual wheels, 2 equipped with locking brakes, with stainless steel tube,
Dimensions:
Mobile stand: 670 x 1500 x 670 mm (w x h x d),
Caster diameter: 100 mm
Trolley is delivered unassembled.

including:

Subrack for Mobile Stand

Top Cover, with guide sleeve

Stainless Steel Tube, length 135 cm

Equipment Rail

Cross Tube Adaptor

Stainless Steel Round Pipe, length 25 cm

4-12

Please note: The displayed instruments are not included with the instrument cart.

Components/Spare Parts see chapter 7

20 0200 47

29005 AK

20 0200 68

29005 IFH

20 0200 47	**Shelf,** incl. installation accessories, max. capacity 12 kg, dimensions: 455 x 350 mm (w x d), for use with subracks for Mobile Stands 20020060 and 20020061
20 0200 68	**Subdrawer,** incl. installation accessories, with lock, max. load capacity within drawer 5 kg, dimensions: 485 x 130 x 350 mm (w x h x d), for use with subracks for Mobile Stands **20** 0200 60 and **20** 0200 61
11301 BC	**ProShield Protective Tube,** for flexible telescopes, for single use, unsterile, distal closed, package of 10, for use with Holder for Flexible Endoscopes 29005 IFH
29005 AK	**Wire Basket,** for accessories, for mounting to equipment rail, dimensions: 300 x 100 x 200 mm (w x h x d)
10330 BE	**Fixation Device,** for Holder 10330 BC/BD to Standard Equipment Rail 29003 GS, 25 x 10 mm
10330 BC	**Holder,** for BONFILS Retromolar Intubation Fiberscope 10330 B, made of plexiglass, distal open
29005 IFH	**Holder for Flexible Endoscopes,** for mounting to standard tubes, incl. installation accessories

COMPONENTS
SPARE PARTS

Introduction

The chapter “Components / Spare Parts” contains detailed information on KARL STORZ instruments.

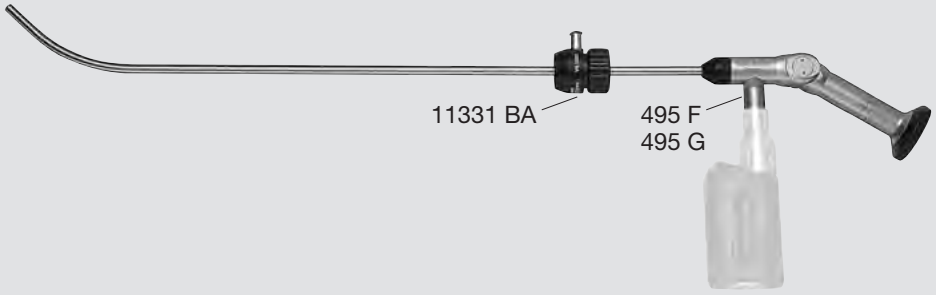
For easy location and reference, an index is available which lists the order number of the spare parts as well as those of the entire instrument, set or unit.

Hotline

Queries concerning products, exchange, maintenance and cleaning can be addressed to the KARL STORZ EP1 Hotline: 07461/708-980, from Monday to Thursday from 7-18 h and Friday from 7-17 h.

Example:

Components / Spare Parts		Catalog page
10331 B2K	BONFILS **Retromolar Optical Stylet,** Basic Set	51, 52
10332 B1	BONFILS **Retromolar Optical Stylet**	51, 52



Spare parts

495 F
Receptacle,
diameter 9 mm, for Wolf fiber optic light cable

495 G
Screw Base,
for KARL STORZ fiber optic light cable and Olympus/Winter & Ibe

10331 BA
Tube Holder for ETT,
for tube fixation, with O_2 application connection, inner diameter 5 mm

10332 BA
Tube Holder for ETT,
with O_2 application connection, inner diameter 3.5 mm

Spare parts assigned to instrument with catalog page reference and order numbers for individual components/spare parts

8-12

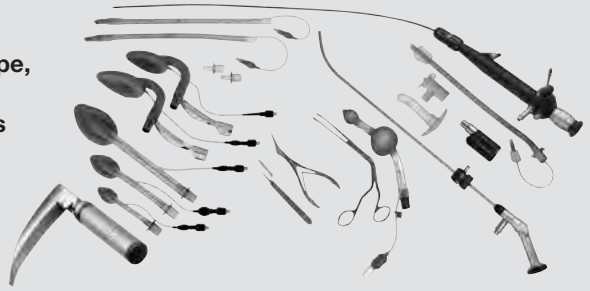
Table of Contents, Numerical Index

COMPONENTS / SPARE PARTS

KARL STORZ — ENDOSKOPE

Intubation Set

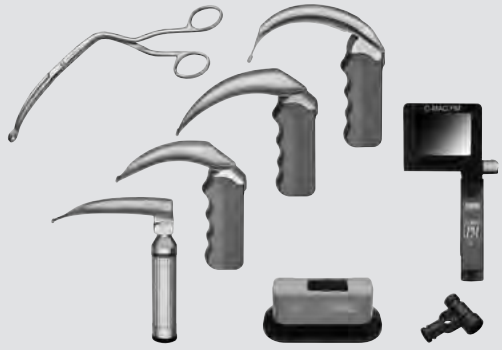
Components / Spare Parts		Catalog page
11300 B3	LIPP/GOLECKI **Airway Management Set**	5
11302 BD2	**Intubation Fiberscope,** 3.7 mm x 65 cm	
10331 B2K	BONFILS **Retromolar Intubation Endoscope,** 5 x 40, **autoclavable**	
11301 D3	**Battery Light Source LED for Endoscopes**	
11008 C	**Mask Adaption "MAINZ Adaptor",** blue, package of 5	
9049 A	**Laryngeal Tube,** size 4	
9049 B	**Laryngeal Tube,** size 3	
9045 I	**Spiral Tube,** size 6, for single use	
10309	**Bronchoscope Insertion Tube,** size 4	
9045 A	**Laryngeal Mask,** standard, reusable, size 1	
9045 B	**Laryngeal Mask,** standard, reusable, size 2	
9045 D	**Laryngeal Mask,** standard, reusable, size 4	
9045 L	**Intubation Laryngeal Mask,** reusable, size 3	
9045 M	**Intubation Laryngeal Mask,** reusable, size 4	
9045 N	**Laryngeal Mask Tube,** diameter 7 mm	
9045 O	**Laryngeal Mask Tube,** diameter 7.5 mm	
9045 T	**LMA Tube Stabilizer**	
809025	MAGILL **Forceps,** length 25 cm	
9045 P	**Scalpel,** for single use, package of 10	
403655	COTTLE **Nasal Speculum,** blade length 55 mm, length 13 cm	
8535 B	DÖRGES **Emergency Laryngoscope Blade,** cold light, universal size	
8546	**Handle Sleeve,** ISO 7376	
8546 A	**Battery Insert,** with 2 Batteries 121306 S and Xenon Lamp 8546 XA	
27677 BK	**Case**	



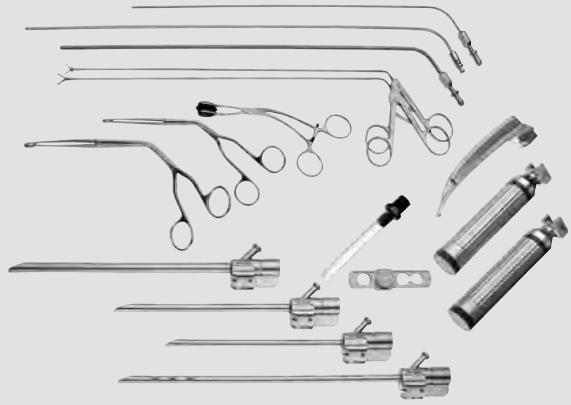
8-12

Intubation Sets

Components / Spare Parts		Catalog page
8400 B	**Intubation Set -C22-,** ULM model	7
8401 AX	BOEDEKER-DÖRGES **C-MAC® Video Laryngoscope MAC #3**	
8401 BX	BOEDEKER-DÖRGES **C-MAC® Video Laryngoscope MAC #4**	
8401 HX	**C-MAC® Video Laryngoscope D-BLADE**	
8401 XDK	**C-MAC® Pocket Monitor Set**	
8401 XDL	**Charging Unit,** for C-MAC® pocket monitor	
8401 YZ	**Protective Cap**	
8546	**Handle Sleeve,** ISO 7376	
8535 B	DÖRGES **Emergency Laryngoscope Blade,** cold light	
8549 LDX	**Battery Insert Set LED,** with cap	
8402 YE	**Bag for Intubation Set -C22-,** ULM model	
809125	MAGILL **Forceps,** modified by BOEDEKER	



Components / Spare Parts		Catalog page
10330 F	**Emergency Tracheoscope Set**	10
10312 HM	**Emergency Bronchoscope,** size 6, length 30 cm	
10313 AM	**Emergency Tracheoscope,** size 9, length 25 cm	
10313 DM	**Emergency Tracheoscope,** size 7, length 20 cm	
10313 EM	**Emergency Tracheoscope,** size 5, length 20 cm	
10314 P	FLUVOG **Adaptor**	
807520	**Adaptor for Ventilation**	
8535 B	DÖRGES **Emergency Laryngoscope Blade,** cold light, universal size	
8546	**Handle Sleeve,** ISO 7376	
8546 A	**Battery Insert,** with 2 Batteries 121306 S and Xenon Lamp 8546 XA	
8546 XC	**Xenon Lamp,** package of 6	
10371 K	**Forceps,** for peanuts and soft foreign bodies	
10371 H	**Forceps,** alligator, for hard foreign bodies	
809020	MAGILL **Forceps,** length 20 cm	
809025	MAGILL **Forceps,** length 25 cm	
802700	YOUNG **Tongue Seizing Forceps**	
10383 B	**Suction Tube,** diameter 3 mm, working length 35 cm	
10380 AK	**Suction Tube,** diameter 4 mm, working length 35 cm	
10383 BL	**Suction Tube,** diameter 5.5 mm, working length 35 cm	
27677 BH	**Case**	



8-12

Battery Inserts

Components / Spare Parts	Catalog page
8546 A Battery Insert	28, 114

Spare Parts

8938191
Cap

Components / Spare Parts	Catalog page
8547 A Battery Insert	28

Spare Parts

8938291
Cap

Components / Spare Parts	Catalog page
8548 LDX1 Battery Insert Set	27
8548 LD1 **Battery Insert,** high-power LED	
121306 P **Photo Battery,** CR 123 A	
8938292 **Cap**	
8549 LDX Battery Insert Set LED	27, 116
8549 LD **Battery Insert,** high-power LED	
121306 KS **Alkaline "AA" Battery,** LR 06, 1.5 V	
8938292 **Cap**	

8-12

Handle Sleeves, Inductive Charging Unit

KARL STORZ — ENDOSKOPE

Components / Spare Parts — Catalog page

8546 **Handle Sleeve** — 27, 28, 114, 116

Spare Parts

8902590
Socket

Components / Spare Parts — Catalog page

8547 **Handle Sleeve** — 28

Spare Parts

8902590
Socket

Components / Spare Parts — Catalog page

8548 **Handle Sleeve** — 27

Spare Parts

8902590
Socket

Components / Spare Parts — Catalog page

8546 LE **Inductive Charging Unit** — 29, 116

Spare Parts

8546 R
Reduction Sleeve

8-12

Components / Spare Parts	Catalog page
8402 ZX-1 Monitor for CMOS Endoscopes	55, 82

Spare Parts

40150031
Power Supply, for charging and starting up C-MAC® 8401 ZX and 8402 ZX-1, with 4 adaptors for Europe, Great Britain, USA/Japan and Australia, power supply 100 – 240 VAC, 50/60 Hz

ET38-1717618
Plug Adaptor UK Standard, to mains adaptor for C-MAC® video laryngoscope

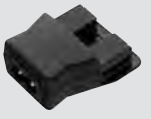
ET38-1717707
Europlug Adaptor, to mains adaptor for C-MAC® video laryngoscope

ET27-30-0004370
Adaptor Cable

ET38-1717715
Plug Adaptor USA/Japan, to mains adaptor for C-MAC® video laryngoscope

ET38-1800496
Plug Adaptor Australia, to mains adaptor for C-MAC® video laryngoscope

8401 XA
Cable Adaptor for C-MAC®, 6-pin to 8-pin adaptor, dustproof according to IP50, for connecting 8-pin instruments to C-MAC® Monitor 8401 ZX



ET27-30-0004369
Primary Adaptor USA

8-12

C-MAC® PM – Pocket Monitor, Charging Unit

Components / Spare Parts		Catalog page
8401 XDK	**C-MAC® Pocket Monitor Set**	89
8401 XD	**C-MAC® Pocket Monitor**	
8401 YZ	**Protection Cap**	

Components / Spare Parts		Catalog page
8401 XDL	**Charging Unit,** for C-MAC® pocket monitor	89

Spare Parts

20290120-PS
Power Supply, C-HUB™

ET27-30-0003207
Plug USA/JP, for Power Supply 20290120-PS

ET27-30-0003206
Plug UK, for Power Supply 20290120-PS

ET27-30-0003148
Primary Plug Europe, for Power Supply 20290120-PS

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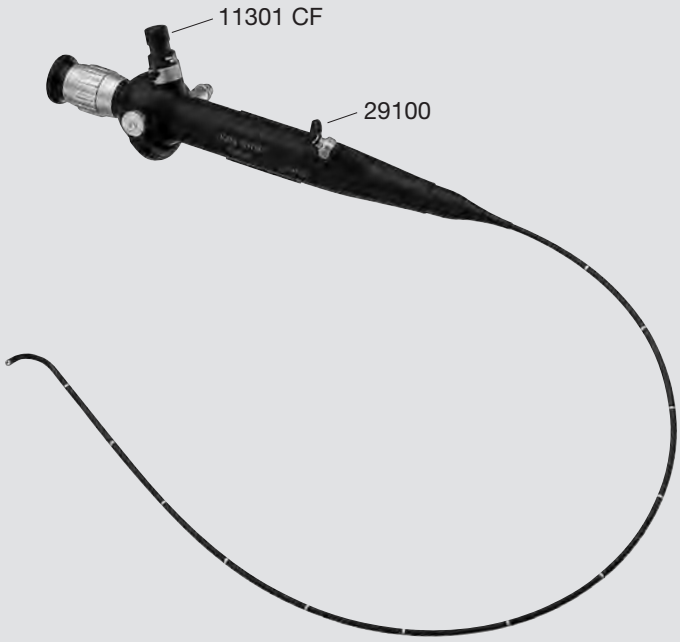
Intubation Fiberscopes

Components / Spare Parts		Catalog page
11301 AA1	**Intubation Fiberscope 2.8 x 65**	44, 48
11301 AB1	**Intubation Fiberscope 2.8 x 50**	45, 48
11302 BD2	**Intubation Fiberscope 3.7 x 65**	46, 48
11301 BN1	**Intubation Fiberscope 5.2 x 65**	47, 48



Spare Parts

495 F
Receptacle,
diameter 9 mm, for Wolf fiber optic light cable

495 G
Screw Base,
for KARL STORZ fiber optic light cable and Olympus/Winter & Ibe

11301 CB
Suction Valve, reusable

11301 CE
Suction Valve, for single use, package of 20

11301 CF
LIPP **Tube Holder,**
for intubation fiberscopes

29100
Plug, for LUER-Lock connector for cleaning, black, autoclavable, package of 10

8-12

Intubation Fiberscopes

Components / Spare Parts		Catalog page
11301 ABD1	**DCI® Intubation Fiberscope 2.8 x 50**	67, 70
11301 BND1	**DCI® Intubation Fiberscope 5.2 x 65**	69, 70
11302 BDD2	**DCI® Intubation Fiberscope 3.7 x 65**	68, 70

Spare Parts

11301 CB
Suction Valve, reusable

11301 CE
Suction Valve, for single use, package of 20

11301 CF
LIPP **Tube Holder,**
for intubation fiberscopes

29100
Plug, for LUER-Lock connector for cleaning, black, autoclavable, package of 10

8-12

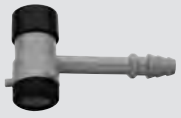
Flexible Intubation Video Endoscope

Components / Spare Parts	Catalog page
11301 BNX Flexible Intubation Video Endoscope 5.5 x 65	91

Spare Parts

11301 CB1
Suction Valve, reusable

11301 CFX
Tube Holder



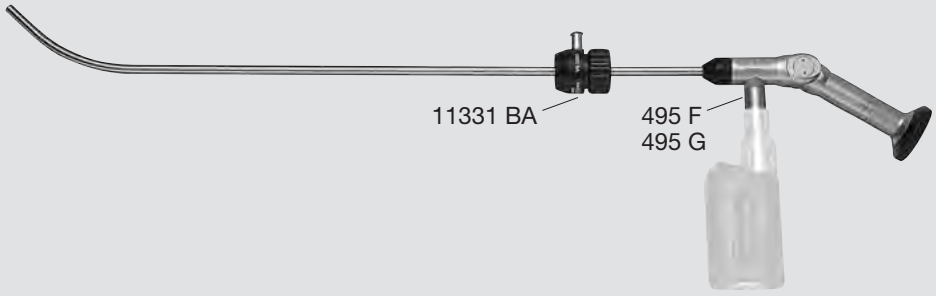
11301 CE1
Suction Valve, for single use, package of 20

29100
Plug, for LUER-Lock connector for cleaning, black, autoclavable, package of 10

8-12

BONFILS **Retromolar Optical Stylets**

Components / Spare Parts		Catalog page
10331 B2K	BONFILS **Retromolar Optical Stylet,** Basic Set	51, 52
10332 B1	BONFILS **Retromolar Optical Stylet**	51, 52



Spare Parts

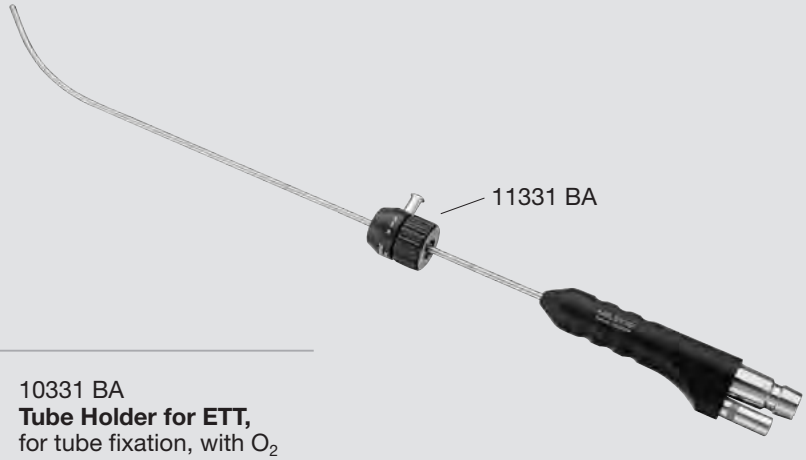
495 F
Receptacle,
diameter 9 mm, for Wolf fiber optic light cable

495 G
Screw Base,
for KARL STORZ fiber optic light cable and Olympus/Winter & Ibe

10331 BA
Tube Holder for ETT,
for tube fixation, with O_2 application connection, inner diameter 5 mm

10332 BA
Tube Holder for ETT,
with O_2 application connection, inner diameter 3.5 mm

Components / Spare Parts		Catalog page
10331 BD1	BONFILS **Retromolar DCI® Optical Stylet**	73, 74
10332 BD1	BONFILS **Retromolar DCI® Optical Stylet**	73, 74



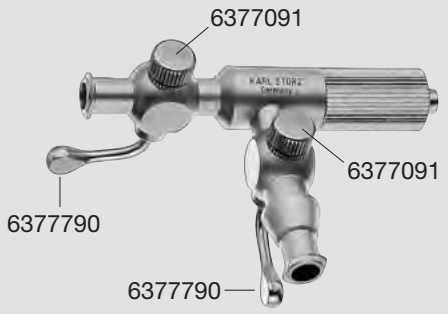
Spare Parts

10331 BA
Tube Holder for ETT,
for tube fixation, with O_2 application connection, inner diameter 5 mm

8-12

Adaptor for Two-Way Stopcock, HOPKINS® Telescopes

Components / Spare Parts		Catalog page
6927691	**Adaptor for Two-Way Stopcock,** LUER-Lock with O_2 tube connection	79, 93

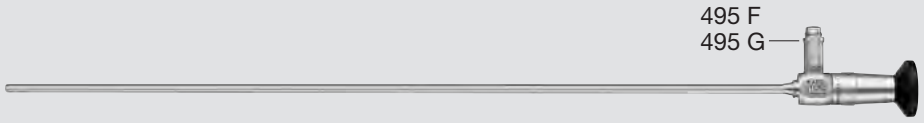


Spare Parts

6377091
Spring Cap

6377790
Stopcock, for working channel

Components / Spare Parts		Catalog page
10320 AA	**HOPKINS® Straight Forward Telescope 0°**	102
10320 BA	**HOPKINS® Forward-Oblique Telescope 30°**	102
10324 AA	**HOPKINS® Straight Forward Telescope 0°**	106



Spare Parts

495 F
Receptacle,
diameter 9 mm, for Wolf fiber optic light cable

495 G
Screw Base,
for KARL STORZ fiber optic light cable and Olympus/Winter & Ibe

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C-HUB™, TELE PACK X

Components / Spare Parts		Catalog page
20290101	**C-HUB™ Camera Control Unit**	97
20290120-PS	**C-HUB™ Power Supply**	
547 S	**S-Video (Y/C) Connecting Cable**	
20200073	**USB Connecting Cable**	

Components / Spare Parts		Catalog page
20045001-EN	**TELE PACK X**	58, 77
20040240US	**USB Silicone Keyboard,** with touchpad, US character set	
20040280	**KARL STORZ USB Flash Drive,** 4 GB	
400 F	**Mains Cord,** length 300 cm	
400 B	**Mains Cord,** US version	

Components / Spare Parts		Catalog page
20020085	**TROLL-E Airway Mobile Stand**	121
20020060	**Subrack for Mobile Stand**	
20020063	**Beam Module,** with tube	
20020067	**Drawer**	
20020049	**Equipment Rail**	
ET43-303127	**Cross Tube Adaptor**	
ET43-302703	**Stainless Steel Round Pipe,** length 25 cm	

20020085

Components / Spare Parts		Catalog page
20020086	**TROLL-E C-MAC® Mobile Stand**	122
20020060	**Subrack for Mobile Stand**	
20020064	**Top Cover,** with guide sleeve	
20020065	**Stainless Steel Tube,** length 135 cm	
20020049	**Equipment Rail**	
ET43-303127	**Cross Tube Adaptor**	
ET43-302703	**Stainless Steel Round Pipe,** length 25 cm	

20020086

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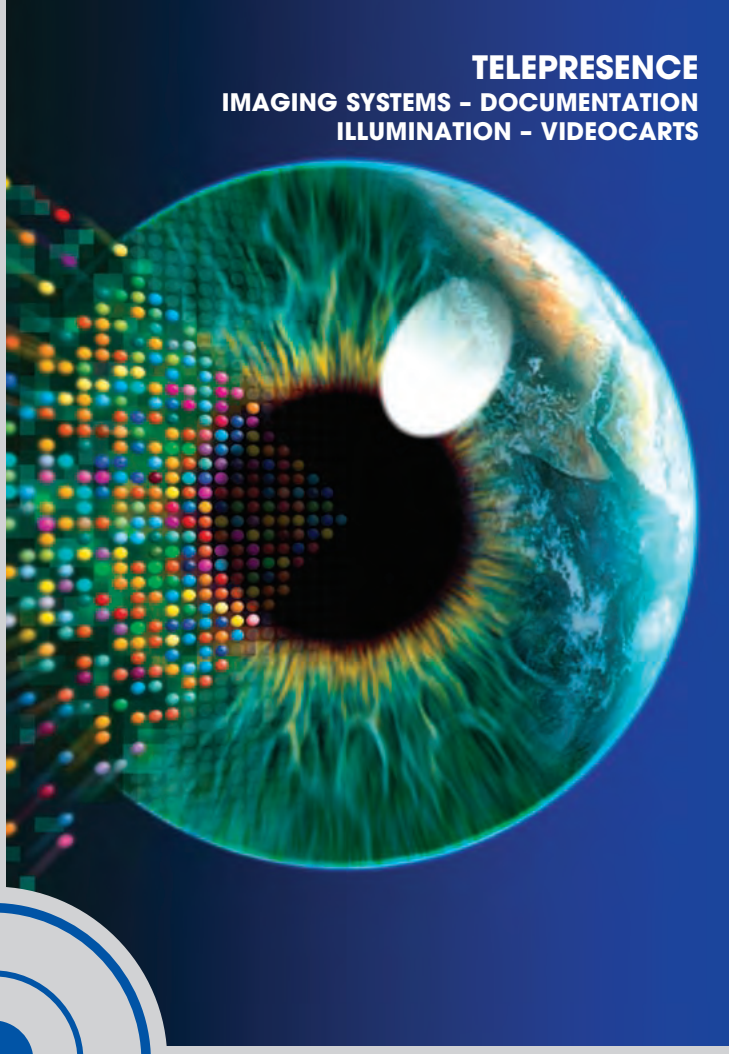
KARL STORZ OR1 NEO™
ERGONOMICS, SAFETY AND EFFICIENCY IN THE OR

TELEPRESENCE
IMAGING SYSTEMS – DOCUMENTATION
ILLUMINATION – VIDEOCARTS



HYGIENE
CLEANING
STERILIZATION AND MAINTENANCE
STORAGE TECHNIQUES

ENDOPROTECT1
KARL STORZ SERVICE PROGRAM

KARL STORZ OR1 NEO™

ERGONOMICS, SAFETY AND EFFICIENCY IN THE OR

The KARL STORZ OR1 NEO™ objective is to provide an optimal operating room design for performing minimally invasive and conventional surgeries. Customized to meet disciplinary and interdisciplinary needs, the OR1 NEO™ operating room concept offers the optimal solution to each requirement for an integrated OR workstation design. The system's modular design allows all components and functionalities to be integrated in the OR1 NEO™ operating room solution and, therefore, become part of the workstation system. Once again, KARL STORZ sets new standards in ergonomics, safety and efficiency in the OR.

- **System integration**
- **Data management and documentation**
- **Telemedicine**

The OR1 NEO™ components provide a customized system and compatible applications. Each component offers a reliable solution on its own; the sum of all components forms a complete multifunctional system.

TELEPRESENCE

- **Imaging systems**
- **Documentation**
- **Illumination**
- **Equipment carts**

FULL HD – New Vision in Medicine
IMAGE 1 HUB™ HD offers the user the highest image quality for the precise display of even the finest tissue and vascular structures.

IMAGE 1 HUB™ HD enables the connection of the latest HD camera heads and all standard IMAGE1 camera heads.

Existing IMAGE1 can be updated to enable HD images to be displayed and HD camera heads to be utilized.

KARL STORZ WIDEVIEW™ monitors deliver **optimal image display.** Using the 16:10 aspect provides a larger display window and improves the viewing ergonomics.

HYGIENE

CLEANING, STERILIZATION AND MAINTENANCE, STORAGE TECHNIQUES

- Accessories for maintenance and cleaning
- Cases for cleaning and disinfection
- Quivers for disinfection and storage of flexible endoscopes
- Wire trays for cleaning, sterilization and storage of endoscopes, instruments and motor accessories
- Instrument racks for cleaning, sterilization and storage
- Plastic containers for cleaning, sterilization and storage of endoscopes
- Plastic containers for cleaning, sterilization and storage of endoscopes, camera heads and instruments
- Stainless steel trays for sterilization and storage of instruments
- Aluminium trays for sterilization and storage of instruments
- Sterilization containers with MicroStop® system
- Racks for cleaning, sterilization and storage of ENT instruments
- Aluminium cases for HOPKINS® telescopes
- Carrying cases for instruments and accessories

ENDOPROTECT1

KARL STORZ SERVICE PROGRAM

- **Repair service**
- **Set audits**
- **Training**
- **OR1™ service**
- **Hygiene**
- **ORCHESTRION® IMM**

KARL STORZ has developed and optimized a special service program for the protection of patients, users and investments: ENDOPROTECT1

ENDOPROTECT1 from KARL STORZ provides a comprehensive range of safe and cost-effective services to meet the needs of endoscopic equipment in everyday clinical practice.

ENDOPROTECT1 Service Program: modular – safe – cost-effective