

The visible voice



HRES ENDOCAM 5562

Laryngoscopic diagnosis system

High speed for the doctors – High speed for the patients

Digital high-speed videophotography in diagnosis and therapy

With its increasing number of professions relying on voice, modern society places ever greater demands on our speech organs. As a result, dysphonia is on the rise in a wide variety of professions.

The voice is the acoustic product of the larynx function and the structure of the phonation organs. In addition to morphological evaluation, the functional examination of the larynx is therefore of special diagnostic importance. Effective diagnostics is thus an essential prerequisite for selective, individual therapy to restore or improve speech quality and performance. According to the recommendations of the European Laryngological Society as well, research and evaluation of the speech organs form an essential part of voice diagnostics.

Endo-stroboscopy has also been established for some time as a routine clinical procedure. The stroboscopic

principle is based on a visual illusion and facilitates detailed and nuanced evaluation of vocal cord oscillations. The essential diagnostic significance lies especially in the differentiation of organic dysphonias. However, this process is subject to limits imposed by its temporal resolution in recording and interpreting irregular vocal cord oscillations.

While an analysis of only 25 full images per second is possible with the aid of stroboscopy, high-speed videophotography as presented in this brochure has been able to capture 4000 or more images per second. It is therefore superior to clinical laryngostroboscopy in many areas of speech diagnostics. The faster resolution of digital high-speed videophotography makes it possible to record periodic deviations in individual vocal cord movements precisely and to observe opening and closing phases in the motion process of the vocal cords

without phonation. Examining the use of voice has a great diagnostic importance, especially in evaluating functional dysphonias. In addition, color display options allow not only a functional, but also a detailed morphological evaluation.

Combined with a special laryngoscope, a continuous light source, and a PC processing system, the WOLF HRES ENDOCAM 5562 provides researchers with a complete diagnostic system that allows more precise and extended evaluation of physiological und pathological voice parameters at a reasonable price.

**University Professor
Dr. Patrick Zorowka
Medical University of Innsbruck**

- Up to 4000 colour images per second
- High-resolution mode
- Processing in the form of video kymogram
- Processing in the form of glottogram
- Retrospective examination timeframe

See more than is possible



The new high-speed technologies from WOLF allow you to record movements that simply cannot be perceived by the human eye.

Up to 4000 individual colour images per second can be captured and re-played in slow motion. This shows a dynamic resolution of 20 images per vocal cord oscillation (at phonation of 200 Hz) - irrespective of the microphone signal. For the first time ever, this enables the recording of vocal cord vibrations, allowing observation of frequency fluctuations and aperiodic vibrations. All in colour. A significant advance in comparison with video stroboscopy.

Up to 4000 colour images per second

The decisive seconds



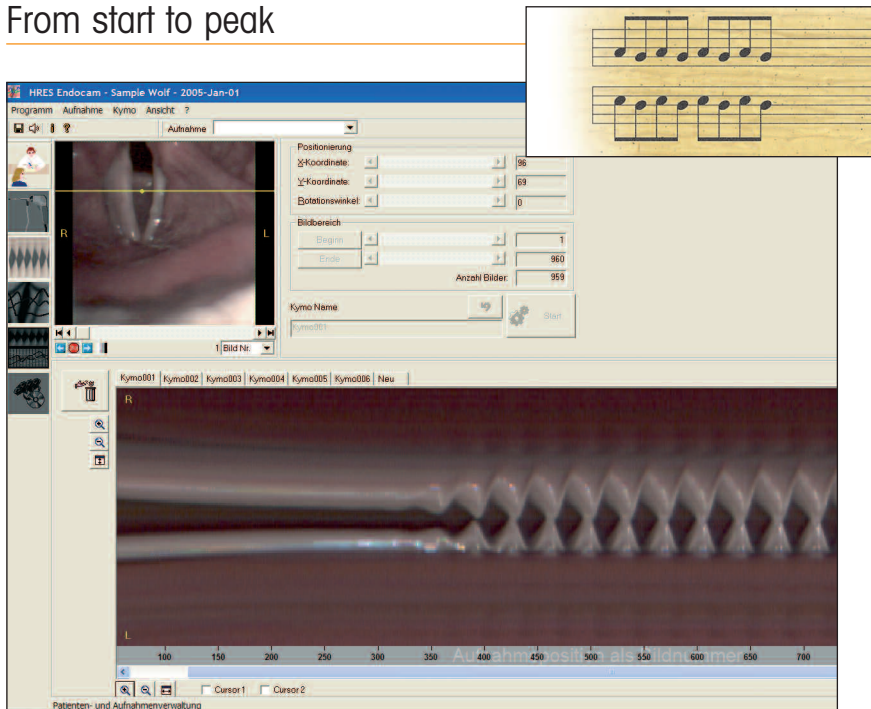
Continuous recording and storage of the last two seconds. In examination situations, that provides you with an advantage you cannot underestimate. If you spot an interesting sequence, simply stop the recording in full knowledge that what you have seen will have been recorded.

This saves your patient from having to perform repetitions for your observations, significantly shortening the examination period. And you can rely on the results.

**Retrospective
examination timeframe**



From start to peak



As soon as the recording has been made, the software part of WOLF's ENDOCAM solution starts to process the data. The latest developments in the video software allow it to process the recorded image information, immediately transforming it into diagnostic views.

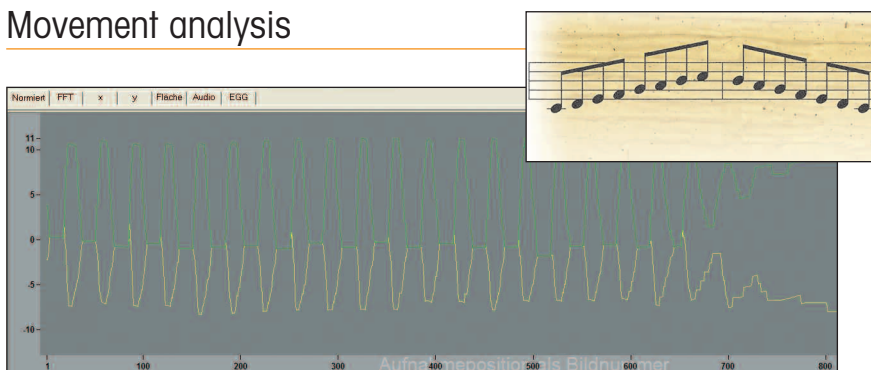
The software allows you to define a line across any point of the glottis, for which it then transposes the sampled movement into a digital kymogram, displayed on the screen.

The large number of images means that, for the first time, you can record, view and assess the initial vibrations of the vocal cords. Special anatomical features, malformation, or pathological structures can be observed in the process of movement, providing information about air flow during speech. This especially improves functional assessment in phonation phases or aphonia.

There is no need for a microphone signal during the examination, allowing a much better assessment of "hoarseness".

Processing in the form of video kymogram

Movement analysis



The movement of the vocal cords can also be analysed in the form of a glottogram. The user defines regions of interest, the dynamics of which are then plotted as a curve.

Processing in the form of glottogram

A system for doctors and patients

Sensitive in detail



In addition to its high-speed functionality, the WOLF ENDOCAM is also able to provide high-resolution sequences. This makes all essential diagnostic processes for the motion sequences of the vocal cords available in one system: High-speed recording of complex motion processes and high-resolution image diagnostics.

High-resolution mode

The various functions of the WOLF HRES ENDOCAM 5562 are combined with a trailblazing diagnostic system for special evaluation of the larynx function, especially in terms of how speech comes into being at the level of the glottis.

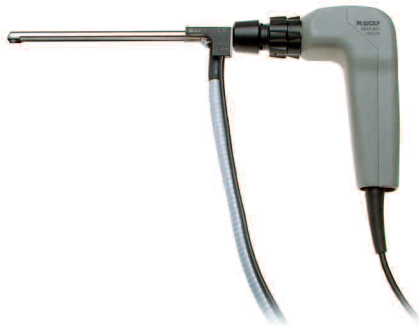
For doctor and patient alike, the ease of use of this system makes the entire examination process more comfortable and improves the validation of diagnoses significantly.

Numerous features in the software make managing and archiving data simple, with commands available at the click of the mouse.

- User-friendly system just press the button on the camera
- Modern patient management system with administration tools for appropriate information
- Differentiated archiving and documentation functions
- Voice-independent recording procedures
- High-speed recordings with up to 4000 images/second
- Up to 4 seconds retrospective observation time frame in high-speed mode
- Replay in slow motion or as individual images, directly after recording on the video monitor
- Generation of digital kymograms
- Visualise movements in the form of a glottogram
- Interactive evaluation of various visualisation forms
- Compact, space-saving system

HRES ENDOCAM 5562

Overview



		Type
HRES ENDOCAM 5562 Camera Controller Set		
with standard interfaces		
Colour system PAL		5562.001
Colour system NTSC		5562.601
High-performance light source AUTO LP 5132		
incl. 300 W Xenon light module (2431.101)		
HRES ENDOCAM 5562 Camera Head		
Integrated RIWO zoom lens		
HRES Laryngoscope		
Special laryngoscope for use with HRES Endocam 5562, \varnothing 9.1 mm, WL 167 mm		
HRES Laryngoscope angle of view 70°		8454.003
HRES Laryngoscope angle of view 90°		8454.002
Integrated microphone		
5052.801		
Air guide tube		
8454.155		
Removable for use with HRES laryngoscope		
Thermal protective cap		
for use with laryngoscope 70°		
8454.154		
for use with laryngoscope 90°		
8454.156		

		Type
Desktop PC incl. mouse, keyboard, Windows XP		
German		5562.401
English		5562.402
PC monitor 17" TFT		
5370.003		
SONY LCD monitor 15"		
5370.215		
Pro-Cart ENT II Unit Trolley		
32113.002		
only approved for Europe (CE-tested); base chassis, keyboard drawer with mouse pad, storage shelf with handle.		
Two monitor brackets for for LCD monitors, separate 1200 VA transformer with 6-way European safety socket block and 5 European safety socket cables.		
Camera head holder for video trolley		
32113.513		
RIWomobilsmart unit trolley		
31114.001		

For further information and more accessories, please consult our main catalogue.