

Clear. Easy. Different.

Hi Line and i-scan. Outstanding precision in endoscopy.



The most important endoscopic device: Your eye.

PENTAX Hi Line offers the ideal platform.



The PENTAX Hi Line system sets a new standard for state-of-the-art endoscopy. The system features professional high-definition HD+ technology delivering a unique combination of modern imaging and image processing technology.

The HD+ images created by the PENTAX EPK-i processor and 90i endoscopes currently provide the highest endoscopic image resolution available. Your complete PENTAX Hi Line system is all you need to achieve the best performance every day – ranging from diagnosis and characterization to therapy. Trust your experienced eyes and enjoy exceptional visual quality and intuitive handling.



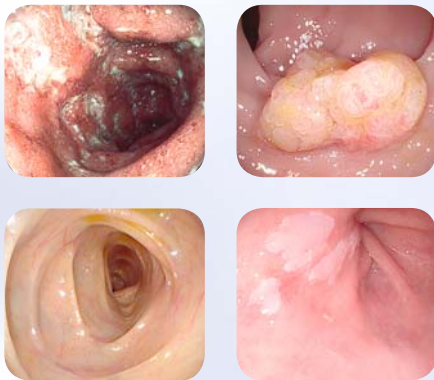
*A new spectrum of
visual brilliance.
At the push of a button!*



The EPK-i processor: New visual precision

Experience images in unique HD+ quality: the Hi Line endoscopes in conjunction with the EPK-i processor's innovative technology set a new standard for modern endoscopic imaging.

A new operating set-up ensures greater ease of use. Each function of the EPK-i processor can be controlled quickly and precisely with the aid of the intuitive touch screen.



The i-scan technology: Your diagnostic support

Customize your i-scan function: the software tool integrated into the EPK-i processor. Experience enhanced visibility of vessel architecture, miniscule structures, identify the margin of lesions, and perform improved lesion characterization. Virtual chromoendoscopy is now possible at the push of a button.



PENTAX Hi Line HD+ endoscopes: The new standard

The PENTAX 90i endoscopes enable you to see more thanks to a high performance HD+ chip that delivers images in extraordinarily high resolution.

The Hi Line series endoscopes provide improved procedures for both patient and clinician with their advanced ergonomics, responsive scope handling and wide range of exciting new features.

Eyes are used to natural, sharp vision. Why give them anything less?

Achieve better diagnoses with virtual chromoendoscopy.



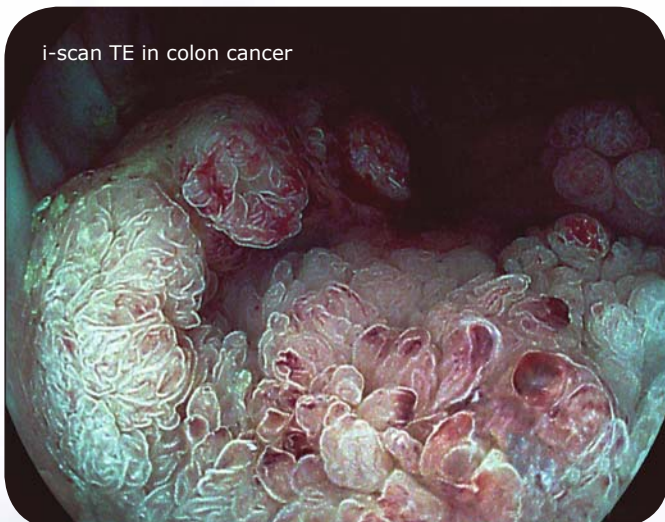
Unique high resolution images with High Definition (HD+)

- Improves orientation and detection in combination with excellent illumination
- Significant improvement in the visibility and evaluation of minute lesions
- Integrated optical and/or electronic zoom for more detailed viewing



Easier detection and demarcation with i-scan Surface Enhancement (SE)

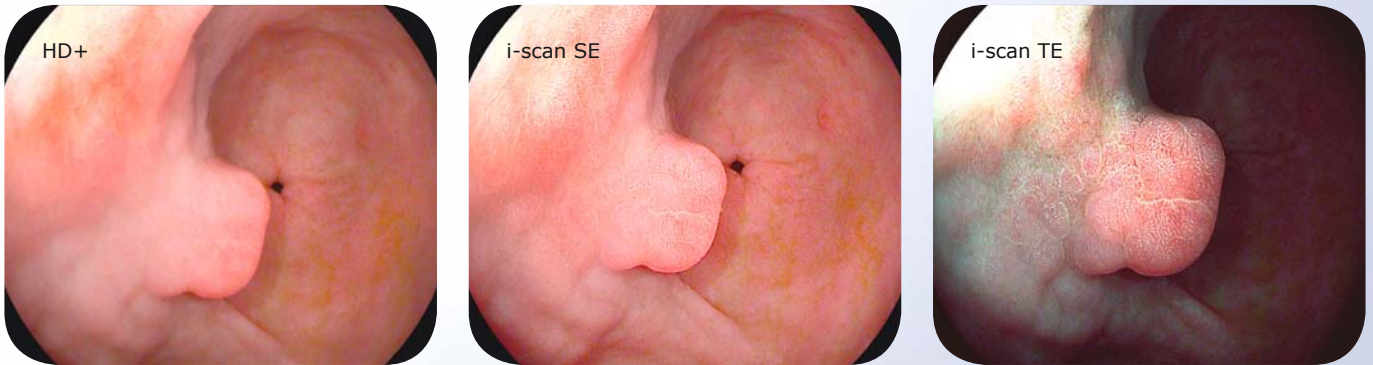
- i-scan SE retains the natural color tones
- Accentuation of suspicious looking tissue in real time, at the touch of a button
- Mucosal enhancement for improved flat lesions detection



Support in characterization with i-scan Tone Enhancement (TE)

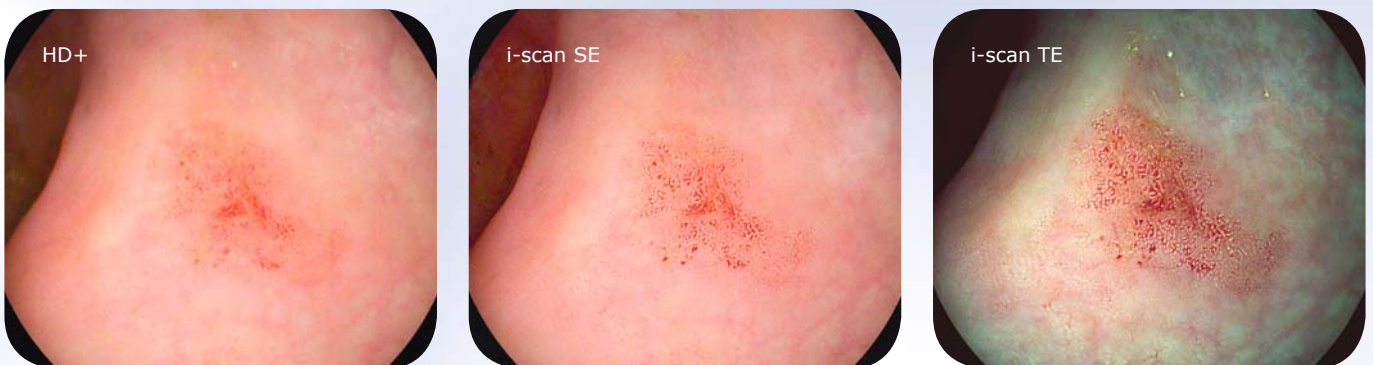
- Targeted imaging technology for further assistance in diagnosis
- Simplifies lesion characterization through improved mucosal structure assessment
- Virtual chromoendoscopy for an improved diagnosis

HD+ and i-scan sequence in an upper GI procedure



The differential diagnosis of gastric lesions is challenging. A polypoid lesion is clearly visualized with HD+. i-scan Surface Enhancement (SE) makes it possible to visualize the regular surface architecture. i-scan Tone Enhancement (TE) then confirms that the patterns on the surface are identical to those on the surrounding tissue. This enables the immediate diagnosis of hyperplastic gastric polyps and prevents unnecessary endoscopic intervention.

HD+ and i-scan sequence in a lower GI procedure



The detection of flat adenomas is a key element in high class colonoscopy because they pose an increased risk of malignant transformation and can easily be overlooked. Very subtle irregularities can be seen in the ascending colon with HD+ imaging, i-scan Surface Enhancement (SE) clarifies the adenomatous tissue component of the lesion, whereas i-scan Tone Enhancement (TE) clearly unmasks the border of this flat adenoma. Subsequently complete endoscopic resection can be ensured.

Seeing. Detecting. Knowing.

Improved support along the diagnostic pathway.

For better detection			
Patients n = 69	HD+	i-scan	Chromo-endoscopy
Number of lesions	154	335 ¹	646 ¹
Number of neoplastic lesions	5	11 ²	11 ²
¹ Two-way ANOVA p<0.0001 ² Two-way ANOVA p=ns			

The detection rate of neoplastic adenomas is the same in both groups when comparing dye chromoendoscopy with i-scan virtual chromoendoscopy.

Recognition and characterization of small colonic neoplasia with high-definition colonoscopy using i-scan is as precise as chromoendoscopy. Hoffman A. et al, Dig Liver Dis. 2009 May 25.

For better detection			
Results	HD+	Standard	p-value
Patients	100	100	
Patients with at least one adenoma	38	18	< .0001
Total number of lesions	144	37	< .0001
Total number of neoplasias	80	16	< .0001
Number of flat adenomas	22	3	< .0001
p<0.0001 Mann-Whitney Test			

The detection rate for adenomas with PENTAX HD+ endoscopy is significantly superior to standard endoscopy.

"High-definition colonoscopy combined with i-scan is superior in the detection of colorectal neoplasias compared to standard video colonoscopy" a prospective randomized trial. Hoffman A. et al, Endoscopy 2010

For easier characterization			
Pit pattern	Hyperplasia	Neoplasia	total
Hyperplasia pit pattern I/II	63	2	65
Neoplastic lesions pit pattern III/IV/V	0	80	80

Histology could be predicted with a high sensitivity (98%) and a high specificity (100%) using i-scan TE.

"High-definition colonoscopy combined with i-scan is superior in the detection of colorectal neoplasias compared to standard video colonoscopy" a prospective randomized trial. Hoffman A. et al, Endoscopy 2010

For more accurate diagnosis in GERD			
	HD+	i-scan	Lugol's solution
Number of patients with macroscopically defined esophagitis	9	12 ²	25 ¹
Number of small lesions	21	58 ¹	85
¹ Significant p<0.01 ² Not significant p<0.01			

i-scan as well as Lugol's solution (chromoendoscopy) significantly improve the identification of patients with esophagitis.

"High-definition endoscopy with i-scan and Lugol's solution for more precise detection of mucosal breaks in patients with reflux symptoms" Hoffman A. et al, Endoscopy 2009.

For reliable surveillance in Barrett's Esophagus			
i-scan	Histolog. Barrett	Histolog. Ø Barrett	total
Type III-IV	26	2	28
Type I - II	2	13	15
Sensitivity: 92,8%, Specificity 86,7%, Accuracy 90,1%			

Under the guidance of i-scan targeted biopsies are reliable for predicting Barrett's epithelium.

"Acetic acid guided biopsies compared with high-definition endoscopy and i-scan guided biopsies in the detection of Barrett's esophagus" Hoffman A. et al, Poster Presentation, DDW 2010.

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