

eHD Technology

in musculoskeletal

“Diagnostic value enhancement and system usability optimization are the main key factors taken into consideration in the development of the eHD Technology. It focuses the whole ultrasound chain, from the transducer to the display, passing through signal processing and strategic features.”

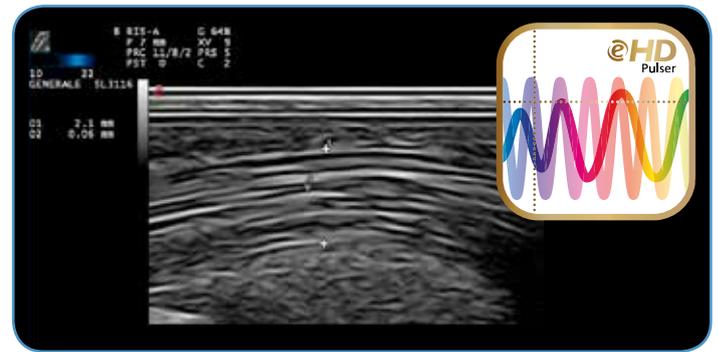


The probe is the first and main component of the long chain that a signal has to pass through, it represents the ultrasound beam transmitter and the backscattered echo receiver. Esaote iQProbe technology is of main importance to obtain a high signal to noise ratio, a sharp signal full of information regarding spatial, contrast and temporal resolution. In addition it targets the optimization of ergonomics and usability with the unique appleprobe design.



Based on iQProbe concept, eHD Technology introduces further improvements in terms of array material and acoustic lens. Thanks to the single crystal piezoelectric elements, the transducer bandwidth is enhanced providing a better signal sensitivity. While a complete new design of precisely engineered matching layers is introduced, the latter increases the number of layers and enhances the quality acoustic lens. It is now available an extraordinary impedance optimization, which is one of the fundamental objective in order to obtain top signal sensitivity, imaging & Doppler quality and new gel agents resistance.

eHD Pulser



Esaote flagship eHD Pulser is the core of the system’s front end technology. It creates any kind of ultrasound beam waveform. It is the powerful tool to drive any probe at the right signal waveform, thus enabling:

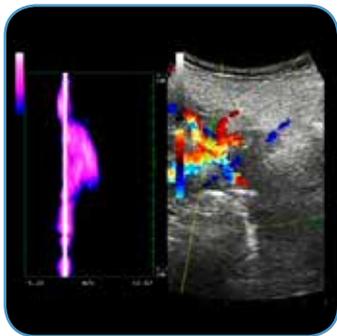
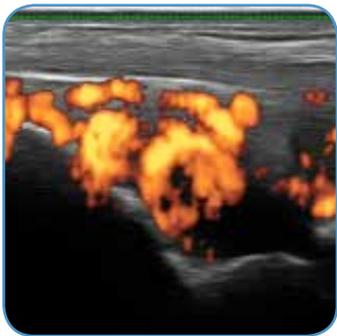
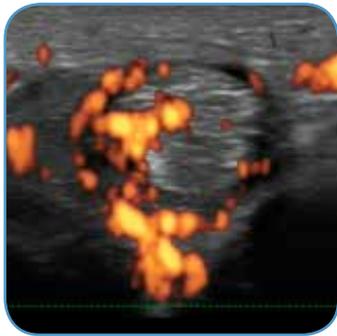
- optimized and uniformed acoustic field along the complete line of sight to achieve image homogeneity;
- optimized acoustical energy distribution within the whole field of view with no frame rate reduction;
- uniform energy distribution both in near and far field.

eHD Processing



eHD Technology introduces new performance to XView real-time algorithm, provides a further significant reduction in speckle, and enhances the visibility of the structures inside the human body without changing the overall image appearance. eHD Technology powered XView increases contrast resolution by increasing the signal to noise ratio. The combined use, at the same time, of XView and MView Spatial Compound Imaging gives to the user a superior ultrasound imaging quality that extremely increases diagnostic confidence and image readability.

eHD Doppler



The Esaote advanced Doppler technology enables the reaching of unprecedented and unmatched Doppler sensitivity and unique three-dimensional Doppler techniques.

eHD CFM is an extra-sensitive Doppler signal color flow mapping representation whose powerful architecture is based on extremely large transducer's bandwidth and innovative Doppler signal processing algorithms which increases dynamics along the complete CFM signal processing, enlarging the number of bits due to increased calculation power. Optimized clutter filtering for each application and enhanced spatial resolution generated by dedicated algorithm for optimized vessel border detection. Optimized CFM parameterization along the whole line of sight with an increased sensitivity also in depth.

Work in Progress QDP (Quality Doppler Profiles) Technology is a new Multigate Spectral Doppler technology that processes the echo signals backscattered from multiple depths along the US beam, producing and displaying in real-time the so-called spectral profile.

This is a matrix of power spectral densities corresponding to the simultaneously investigated depths. QDP technology investigates the "third dimension of Doppler" in a graphical form, where spatial distribution is on the vertical axis and velocity distribution on the horizontal one, while the brightness of any pixel describes the power of the corresponding spectral density. In this way, QDP enables the simultaneous analysis of different vessels and different blood flow components within the same vessel in real time without frame rate loss.

eHD Technology Imaging

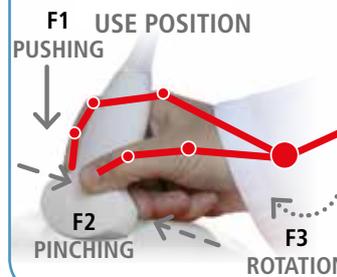


eHD Technology Imaging represents the window through which the user is able to get the diagnostic information he is looking for. Esaote has always implemented the latest visualization tools and technologies in order to ensure clear images full of information.

Ergonomics

The Esaote ultrasound systems are designed with a simple user interface and personalized automation tools, intuitive and immediate menu. Ultrasound probes light and appleprobe ergonomics reduce at the minimum any physical stress also in situations of elevated workload and patient trough-put. High system mobility in terms of transportation handling and adaptability to the diverse physical characteristics and necessities of the operator.

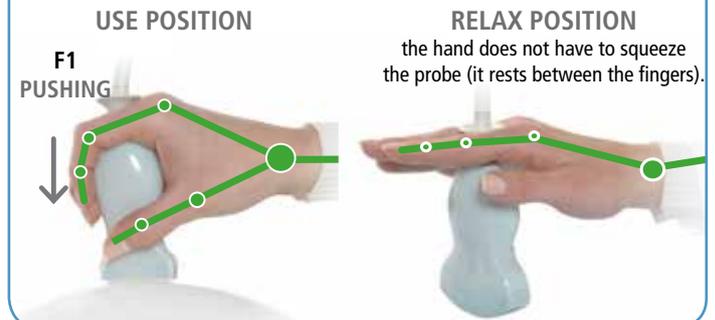
CONVENTIONAL GRIP



NO RELAX POSITION
as in the other probes on the market

The muscles, tendons and nerves remain in constant tension, caused by two necessary movements to keep the probe in the hand Pinching and to scan Pushing.

APPLEPROBE GRIP



USE POSITION

RELAX POSITION

the hand does not have to squeeze the probe (it rests between the fingers).

