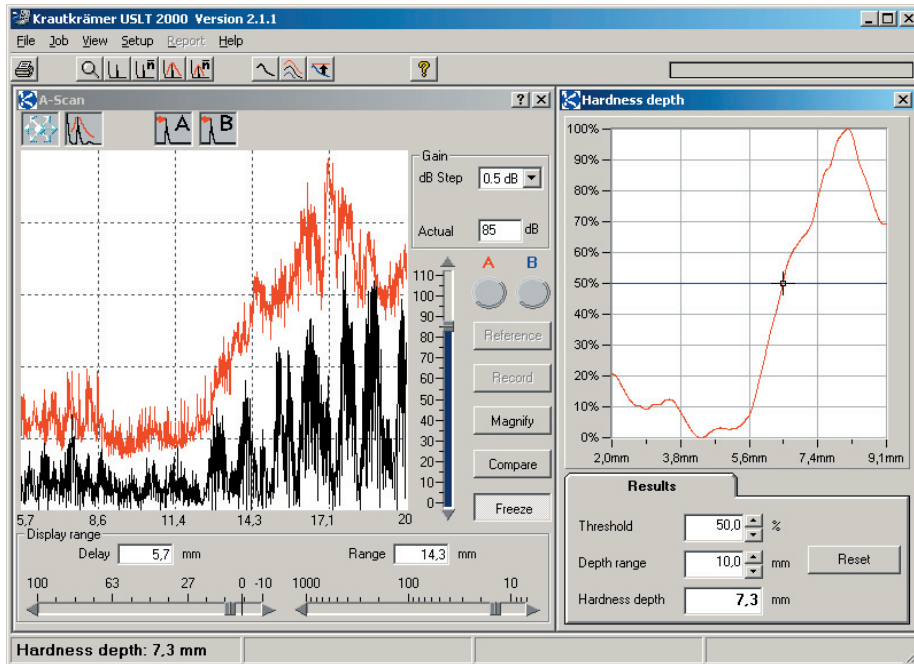


Krautkramer Software-Program Module EHT

... for nondestructive measurement of hardness penetration depth



A PLUS for the USLT 2000

The software program EHT is an additional module for the ultrasonic test system USLT 2000 that can be easily installed as an optional „Plug-In“. This additional software extends the range of functions of the USLT 2000; new fields of application are opened up.

The EHT module (effective hardening depth) is used for the nondestructive measurement of hardness penetration depths of thermally hardened steels. The method presents numerous benefits: The aspect of economic efficiency plays an important part, especially when compared with the conventional destructive tests. Moreover, the EHT module enables to carry out quite a large number of measurements without any problem.

The method

The nondestructive determination of hardness penetration depths is carried out according to the ultrasonic backscatter method. This method makes use of the fact that the mean grain size is reduced by the hardening process.

If an ultrasonic wavelength is selected which is just a little larger than the grain size in the hardened area and somewhat smaller than the grain size in the base material, scatter indications from the transition area can be measured - and consequently also the hardness penetration depth.

A quick and easy evaluation is possible using the EHT software. Firstly, the characteristic of the scatter indications is smoothed, and then the hardness penetration depth is recorded on the basis of the variable threshold value.

The applications

The method works reliably with most of the thermal hardening methods, for example with flame-hardening and inductive hardening.

The following fields of application are presented for the EHT module:

- Production control in hardening shops
- Incoming inspection within the automotive industry, shipbuilding, aircraft construction, within the general mechanical engineering (for example on hardened camshafts, crankshafts, hydraulic cylinders)

For different applications, the probe must be adapted to the geometry and the frequency must be adapted to the microstructure of the material to be tested.

GE imagination at work 