

New Development in 2007:

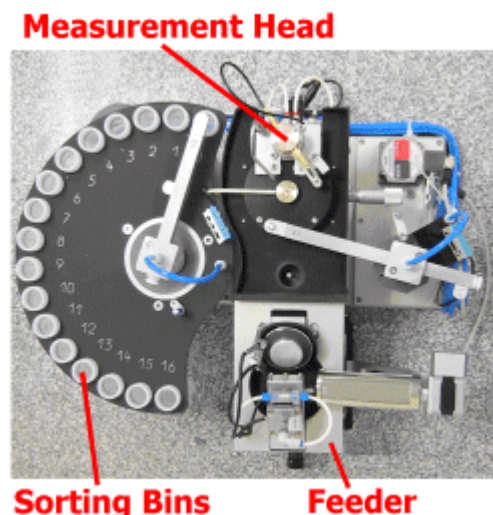
Frequency Sorter with Customizable Measurement

The **Frequency Sorter (FS-05)** is a fully automatic quartz-blank frequency measurement and sorting system for high-speed throughput and large number of blanks. The measurement is based on a touch-free air-gap measuring head with Pi-filters and a network analyzer by Saunders & Associates. A variety of blanks of different size and shape can be handled. The machine is even suitable for inverted MESA type blanks.

One new development in 2007 concerns the definition of a software interface for implementation of external measurement procedures designed by the user. Users may code their external procedures either in Visual Basic or LabVIEW. Also a new feeder unit has been introduced that is more compact and completely avoids buildup of electrical charges.

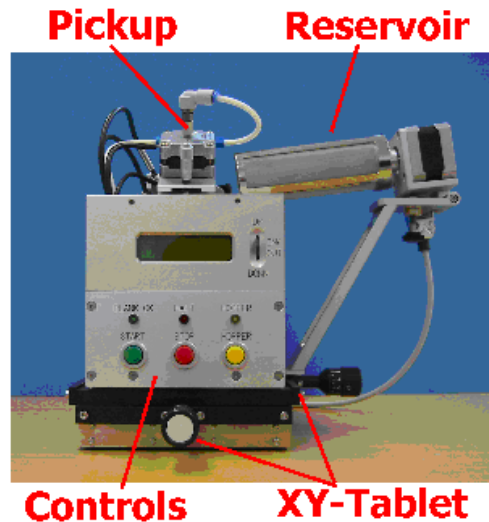
Basic design and function

Up to several thousand blanks may be loaded into the feeder reservoir. They are singled out by the feeder unit and transported to the measurement head. An exchangeable narrow or wide feed-arm suction tip can be used. After the air-gap measurement, blanks are sorted into bins according to their deviation from the center frequency. The measurement procedure can be customized using external code written in Visual Basic or LabVIEW. The minimum cycle time is 1.5 sec.



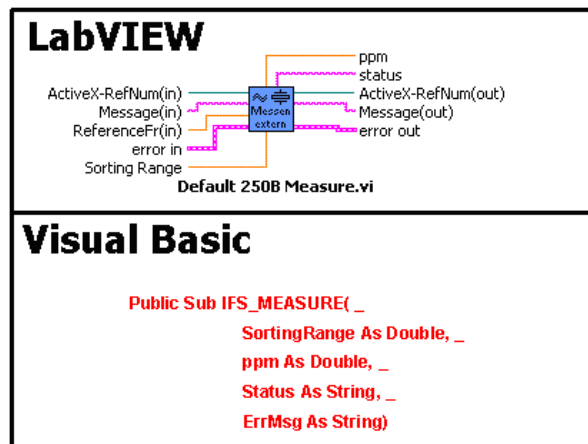
Blank feeder unit

The new blank feeder unit has a reservoir made of fine metal mesh, thus avoiding and even eliminating electrical charges on the quartz blanks. The mesh is rotated slowly, thus gently sliding the blanks into the single-out cup, from where single blanks are picked up and finally presented for handling. The feeder unit is mounted on a high-precision xy-tablet so that the point where the blank is picked up can be properly adjusted. The feeder unit has its own micro-controller and can also be purchased as a separate item.



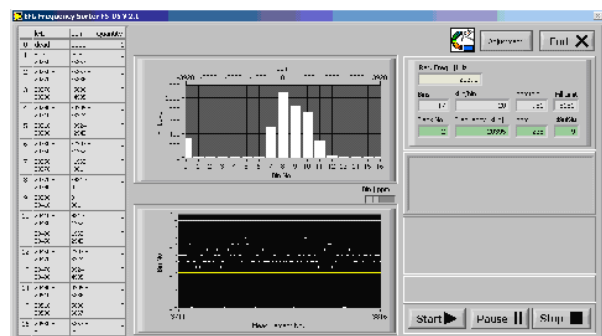
Customizable measurement procedures

Using the Interface for the Frequency Sorter (IFS) customized external measurement procedures can easily be hooked into the frequency sorter software. For example, certain samples such as inverted MESA blanks may require additional evaluations exceeding the standard procedures. The code must either be LabVIEW 8.2 VIs or a project for an ActiveX DLL. Example projects are provided.

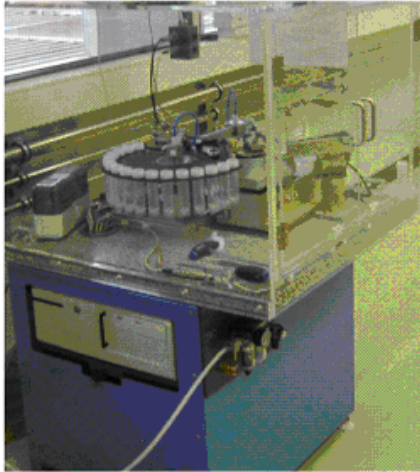


Simple control GUI

The control software run under Windows and displays result table and diagrams on-the-fly. An HTML result summary is created and can be printed.



Technical data



Frequency Sorter FS-05

Weight ca. 250 kg

Dimensions 0.82 m x 0.78 m x 1.36 m

Supply 230 V, 350 VA

Pressured Air 0.6 MPa

> Air-gap measurement head

- PI-network
- Air-gap adjustable for blank thickness

> Network analyzer extension card Saunders&Associates

- 250B: 15 kHz to 220 MHz
- 250C: 15 kHz to 500 MHz

> Fundamental mode and overtone

> Sorting of AT, BT, SC blanks

> Sorting criteria can be specified

> Up to 17 sorting bins

> Minimum cycle time 1.5 sec depending on the measurement method

> Customizable external measurement procedures in LabVIEW or Visual Basic

> Non-vibrating feeder system (also separately available)

- Reduced charges from friction
- Less abrasion
- Blank size 1.5x3 to 3x5 mm for strips and up to 8 mm diameter round
- Modifications for other sizes possible

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