Orientation Tester

NOMURA SHOJI

SST-4500

Orientation tester for paper,paperboard and plastic sheet that applies technology to measure the propagation speed of ultrasonic waves within the sheet.

SST is operated by a PC

Orientation and stiffness analysis

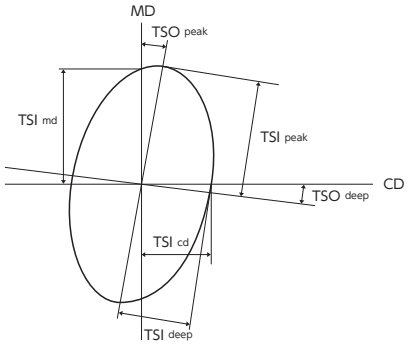
SST is an orientation tester for paper and plastic sheets that uses technology to measure the propagation velocity of ultrasonic waves within the sheet. Additionally, since SST measurement data has a very high correlation with Young's modulus, it is possible to non-destructively evaluate the tensile/compressive stiffness of the measured sample.The SST-4500 is the latest version of the SST series, which is a renewal of the software of the previous SST-4000.

It maintains the features of a small, lightweight body and ease of handling using a computer, but enables analysis work linked to Excel. We have upgraded the software functions.The main body of the measuring instrument and the long sample feeding device (optional) are removable, so when measuring only a cut sheet sample, the main body alone can be installed. Furthermore, it is also possible to add additional feeding device FD-1, if necessary.

SST-4500 Orientation and stiffness analysis

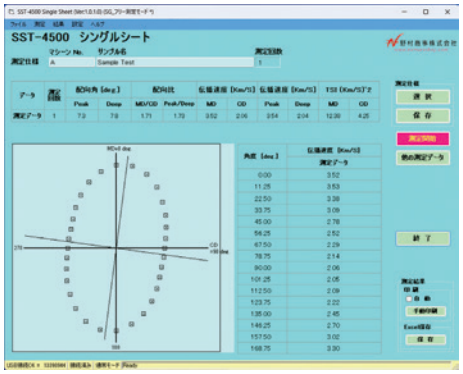
Definition of TSI and TSO

The SST measurement head has 8 pairs of 16 ultrasonic transmitting and receiving elements. Using these elements and SST's unique measurement technology, it measures the speed (km/s) of ultrasonic waves propagating inside the sample every 11.25 degrees. The square value of this propagation velocity (V^2) has a very good correlation with Young's modulus, and in SST, this V^2 is defined as the tensile stiffness index "TSI", and it is expressed as "TSImd" in the MD direction, "TSIcd" in the CD direction, etc. is displayed. Furthermore, SST defines the angle of the maximum value of TSI as "TSOpeak" and the angle of minimum value as "TSOdeep" as angles that express the orientation of tensile stiffness (correlation with fiber/molecule orientation). All measurement operations are performed from connected PC.



Display of measurement data

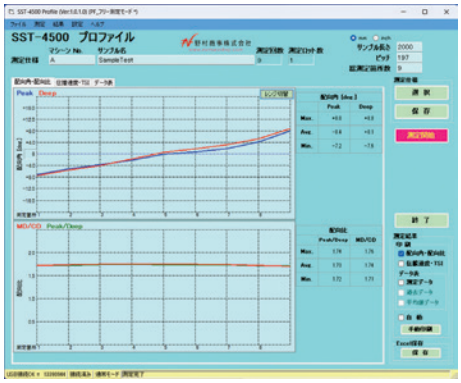
■ Single sheet



For single sheet measurements, A4 size is the standard sample size. Minimum is 15 x 15cm. The following main measurement results and TSI graphics are output. These can now also be output to Excel files. It is also possible to recall past data and compare it with current data on the same screen.

- ●Orientation angle:TSOpeak、TSOdeep
- ●Stifness:TSImd、TSIcd、TSIpeak、TSIdeep
- ●Oroentaion ratio:MD/CD、Peak/Deep

■ CD profile



A long CD sample is automatically measured at specified intervals using the sample feeding device (optional), and profile data is output.
It is also possible to output data measured in cut sheet mode on multiple cut samples taken along the CD, as well as automatically measured data on MD samples. It is also possible to compare with past data.

■ Numerical profile data

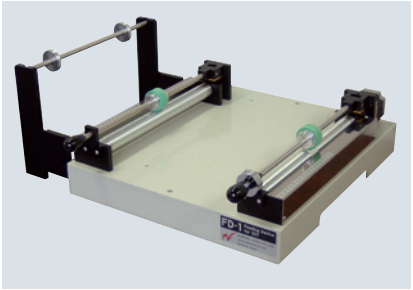
In addition to outputting profile data based on graphs, each numerical data can also be displayed in a list.
All data can now be easily output in Excel.

!!! English version of the software is available.

■Specification

Dimension	D420×W240×H250 mm (10.5kg)
Power supply	AC 100 -240 V 50/60Hz 100W
Air supply	0.3MPa、1L／min
Num of sensor	16
Measuring angle	11.25degree
Meas distance	120mm
Velocity range	0.75～7.5km／sec
Angle accuracy	+/−0.5degree *depends on sample
Measuring time	13sec

■FD-1 Feeding device



	D480 × W555 × H220 mm (13 kg)
	100 mm／s

Nomurashoji Co.,Ltd.
www.nomurashoji.com
3-15-2, Nihonbashi, Chuo-ku, Tokyo Japan
e-mail : nomurashoji@nomurashoji.com