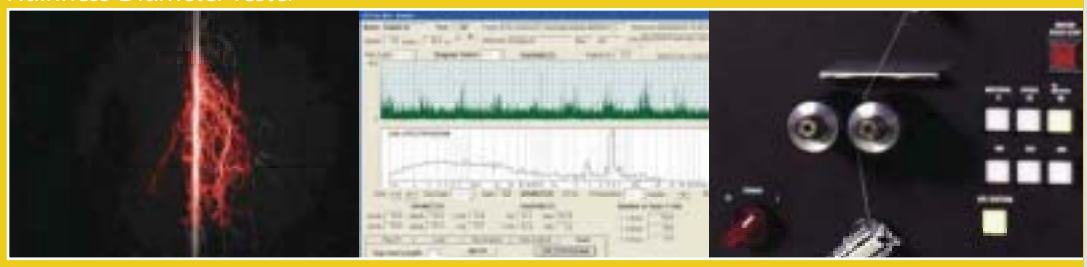
Keisokki

# KEISOKKI
# LASERSPOT
model LST-V

*Hairiness-Diameter Tester*



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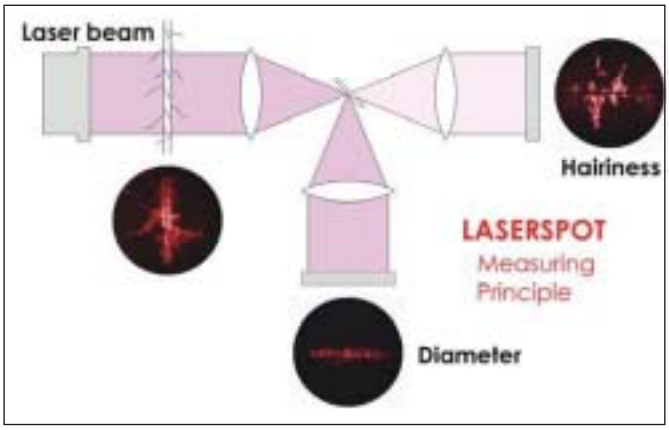
## LASERSPOT LST-V System Composition

LASERSPOT LST-V
consists of Measuring frame (left) and Main evaluation frame (middle) in which a compatible PC system for Windows XP is embedded.

## Measuring Hairiness, Hairs and Diameter at the same time



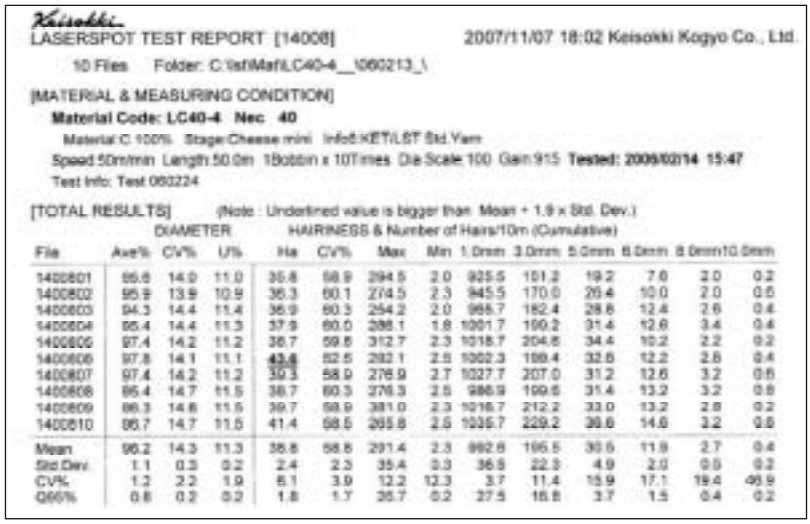

The main body and hairs of the yarn are clearly separated.

LASERSPOT LST-V
measures hairiness and diametric thickness of yarn at the same time by means of laser beam.

LASERSPOT LST-V
as a hairiness tester provides not only the **volume** of hairiness but also the **number** of hairs and the **length** measurements of hairs.

LASERSPOT LST-V
as a diameter tester measures diametric fluctuations of yarn, being useful to measure evenness of metallic fiber yarns and particular yarns with antistatic agents or conductive dyes, which have been unavailable through a capacitive evenness tester.

LASERSPOT LST-V
examines the yarn in both hairiness and diameter. The printout on the right presents the hairiness amount (Ha), CV% of hairiness volume and the classification of hairs, as well as the average (Ave%), CV% and U% of diametric thickness.
The classification shows the number of hairs per 10m in six classes that are defined by length of hair.



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LASERSPOT TEST REPORT [14008] 2007/11/07 18:02 Keisokki Kogyo Co., Ltd.
10 Files Folder: C:\lsf\Mat\LC40-4__060213_\

[MATERIAL & MEASURING CONDITION]
**Material Code: LC40-4 Nec 40**
Material:C 100% Stage:Cheese mini Infed:KET/LST Std.Yarn
Speed:50m/min Length:50.0m 1Bobbin x 10Times Dia Scale:100 Gain:915 **Tested: 2006/02/14 15:47**
Test Info: Test 060224

[TOTAL RESULTS] (Note : Underlined value is bigger than Mean + 1.9 x Std. Dev.)

| | DIAMETER | | | HAIRINESS & Number of Hairs/10m (Cumulative) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| File | Ave% | CV% | U% | Ha | CV% | Max | Min | 1.0mm | 3.0mm | 5.0mm | 8.0mm | 8.0mm | 10.0mm |
| 14008001 | 95.8 | 14.0 | 11.0 | 36.8 | 58.9 | 294.5 | 2.0 | 925.5 | 181.2 | 19.2 | 7.6 | 2.0 | 0.2 |
| 14008002 | 95.9 | 13.9 | 10.9 | 36.3 | 60.1 | 274.5 | 2.3 | 945.5 | 170.0 | 20.4 | 10.0 | 2.0 | 0.6 |
| 14008003 | 94.3 | 14.4 | 11.4 | 36.9 | 60.3 | 254.2 | 2.0 | 966.7 | 182.4 | 28.8 | 12.4 | 2.6 | 0.4 |
| 14008004 | 95.4 | 14.4 | 11.3 | 37.9 | 60.0 | 288.1 | 1.8 | 1001.7 | 190.2 | 31.4 | 12.6 | 3.4 | 0.4 |
| 14008005 | 97.4 | 14.2 | 11.2 | 38.7 | 59.8 | 312.7 | 2.3 | 1018.7 | 204.6 | 34.4 | 10.2 | 2.2 | 0.2 |
| 14008006 | 97.8 | 14.1 | 11.1 | 43.6 | 62.5 | 282.1 | 2.5 | 1002.3 | 188.4 | 32.6 | 12.2 | 2.8 | 0.4 |
| 14008007 | 97.4 | 14.2 | 11.2 | 39.3 | 58.9 | 276.9 | 2.7 | 1027.7 | 207.0 | 31.2 | 12.6 | 3.2 | 0.6 |
| 14008008 | 95.4 | 14.7 | 11.5 | 38.7 | 60.3 | 276.3 | 2.5 | 986.9 | 199.6 | 31.4 | 13.2 | 3.2 | 0.8 |
| 14008009 | 96.3 | 14.8 | 11.5 | 39.7 | 58.9 | 381.0 | 2.3 | 1016.7 | 212.2 | 33.0 | 13.2 | 2.8 | 0.2 |
| 14008010 | 96.7 | 14.7 | 11.5 | 41.4 | 58.5 | 265.8 | 2.5 | 1035.7 | 229.2 | 36.6 | 14.0 | 3.2 | 0.6 |
| Mean | 96.2 | 14.3 | 11.3 | 38.8 | 58.8 | 291.4 | 2.3 | 992.6 | 195.5 | 30.5 | 11.9 | 2.7 | 0.4 |
| Std.Dev. | 1.1 | 0.3 | 0.2 | 2.4 | 2.3 | 35.4 | 0.3 | 36.9 | 22.3 | 4.9 | 2.0 | 0.5 | 0.2 |
| CV% | 1.2 | 2.2 | 1.9 | 6.1 | 3.9 | 12.2 | 12.3 | 3.7 | 11.4 | 15.9 | 17.1 | 19.4 | 49.9 |
| Q66% | 0.8 | 0.2 | 0.2 | 1.8 | 1.7 | 35.7 | 0.2 | 27.5 | 16.8 | 3.7 | 1.5 | 0.4 | 0.2 |

## Correlation between Hairiness and Diameter

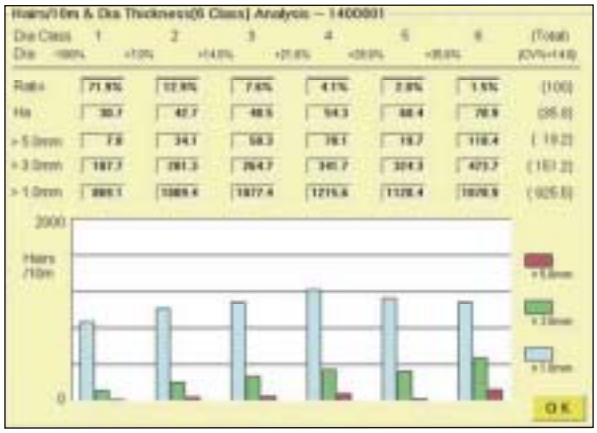
LASERSPOT LST-V
analyzes the measuring results for the correlation between hairiness and diametric thickness of the yarn.

The top screen shows the correlation for a yarn, the diametric CV% of which is 12.7%.

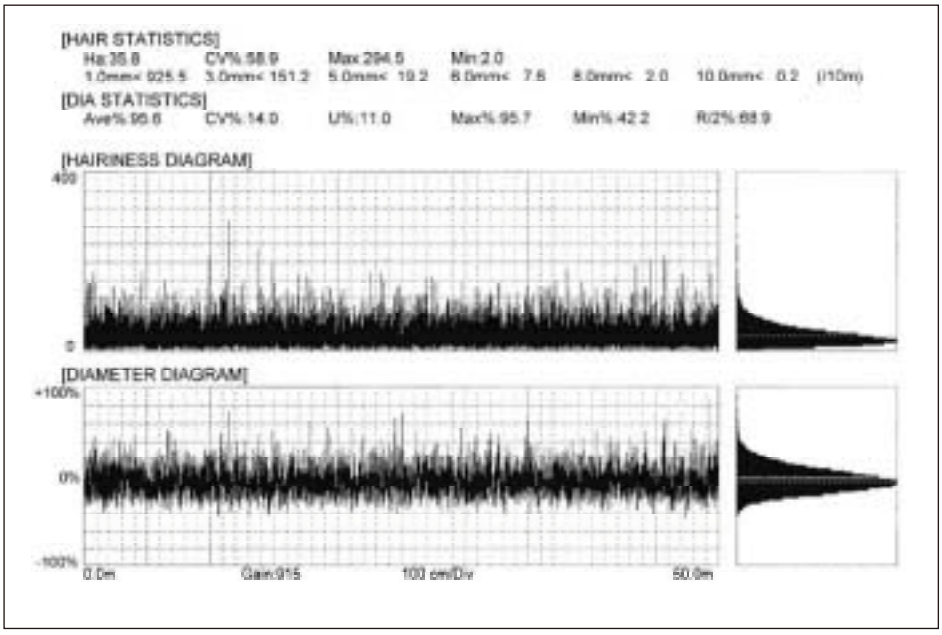
The bottom screen reveals the correlation for another yarn, the diametric CV% of which is 14.0%.

The hairs are classified in two-dimensions, into six classes by diameter of yarn and three classes by length of hair.

The number of hairs per a certain length of yarn (10m for instance) in each class is graphed.

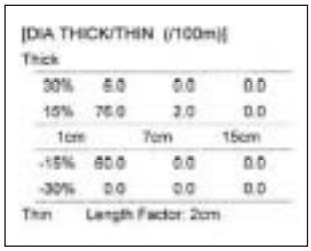


## Analyses in Hairiness and Diameter




(Left:)
Diagrams and histograms of both hairiness and diameter.

(Below:)
Classification of thick and thin place in diametric variation.



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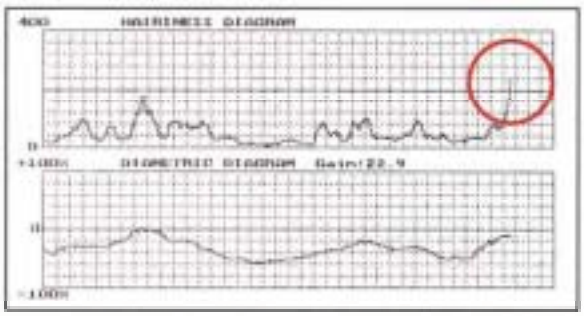
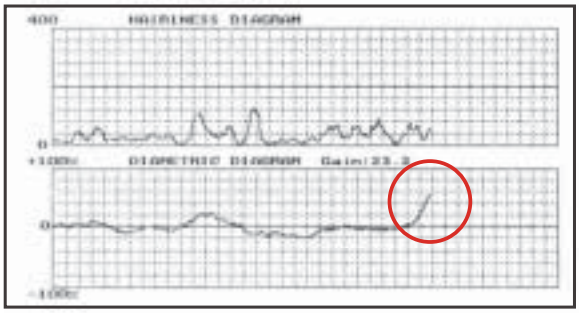
## Trapping Hairy Place and Coarse Place

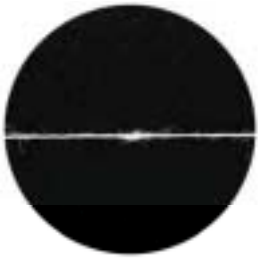
LASERSPOT LST-V
can trap a remarkably hairy place and an unusually coarse place (but either one at a time).
If the signal exceeds the preset threshold level, the feeding rollers automatically stop.
Hence, unusual places can be collected for further investigations.

Hairy place



Coarse place





## Technical data

| | |
|---|---|
| **Principle of measurement:** | Fresnel diffraction by laser beam |
| **Light source:** | Semi-conductor laser |
| **Measuring frame:** | Sensing unit with the laser and driving unit<br>300(W) Ö 420(H) Ö 380(D)mm; Approx 25kg |
| **Application range:** | 150Nec to 1Nec, or 4Tex to 590Tex, approximately |
| **Material feeding speed:** | 8, 25, 50, 100, 200 and 400m/min |
| **Main evaluation frame:** | Compatible PC for Windows XP embedded |
| **Peripheral devices:** | • Display unit (color, 1024 x 768 pixels)<br>• English keyboard and mouse<br>• Laser printer (for English Windows XP)<br>*Users are kindly asked to prepare the peripheral devices at their local markets. If impossible, the manufacturer can provide it. |
| **Supplied software:** | Windows XP (English version) and LST-V system program (Spectrograph is optional.) |
| **Power supply:** | 100/110Vac or 200/220Vac (to be specified at the order), 50/60Hz and<br>750VA maximum consumption in the whole system |
| **Compressed air:** | 2.0kgf/cm$^2$ (196KPa) in pressure and 4m$^3$/h in consumption |

*The specifications and design are subject to change without notice.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