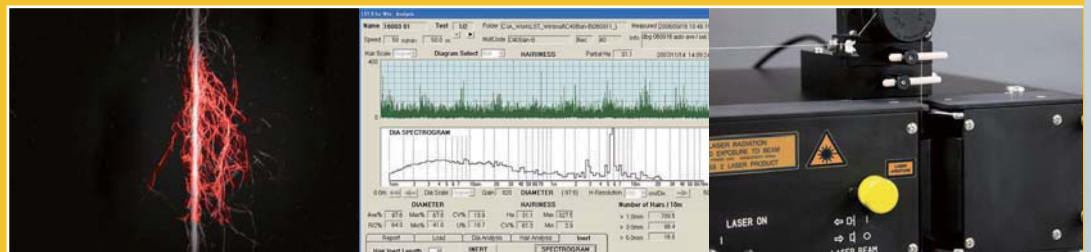


KEISOKKI LASERSPOT

model LST-V++

Hairiness-Diameter Tester



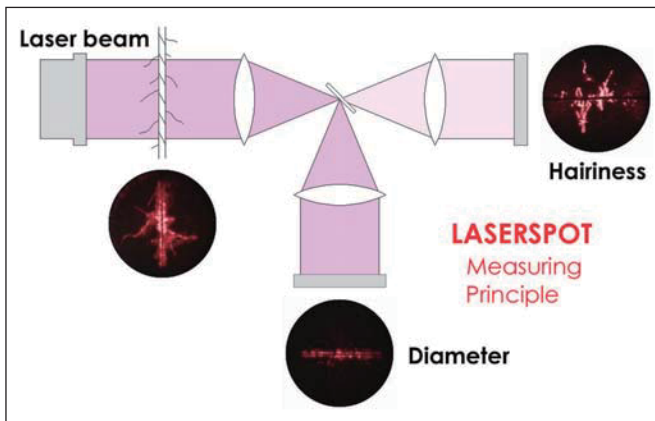
LASERSPOT LST-V++ System Composition

LASERSPOT LST-V++
consists of Measuring frame (left)
and PC system* (right)



*** PC (User prepare, Windows 7 or newer, 32bit English version)
Enough size to store full size PCI board.**

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
fibers and particular yarns which 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.

Kaisokki		LASERSPOT TEST REPORT [14008]		2007/11/07 18:02 Kaisokki Kogyo Co., Ltd.									
10 Files		Folder: C:\stMat\LC40-4_\060213_\											
[MATERIAL & MEASURING CONDITION]													
Material Code: LC40-4 Nec 40													
Material: C 100% Stage: Cheese mini Info: KET/LST Std. Yarn													
Speed: 50m/min Length: 50.0m 1 Bobbin x 10 Times 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.)													
File	DIAMETER			HAIRINESS & Number of Hairs/10m (Cumulative)									
	Ave%	CV%	U%	Ha	CV%	Max	Min	1.0mm	3.0mm	5.0mm	6.0mm	8.0mm	10.0mm
1400801	95.6	14.0	11.0	35.8	58.9	294.5	2.0	925.5	151.2	19.2	7.6	2.0	0.2
1400802	95.9	13.9	10.9	38.3	60.1	274.5	2.3	945.5	170.0	26.4	10.0	2.0	0.6
1400803	94.3	14.4	11.4	36.9	60.3	254.2	2.0	965.7	182.4	28.8	12.4	2.6	0.4
1400804	95.4	14.4	11.3	37.9	60.0	286.1	1.8	1001.7	199.2	31.4	12.6	3.4	0.4
1400805	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
1400806	97.8	14.1	11.1	<u>43.6</u>	52.6	292.1	2.5	1002.3	199.4	32.6	12.2	2.6	0.4
1400807	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
1400808	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
1400809	96.3	14.8	11.5	39.7	58.9	391.0	2.3	1016.7	212.2	33.0	13.2	2.8	0.2
1400810	96.7	14.7	11.5	41.4	58.5	265.8	2.5	1035.7	229.2	36.6	14.6	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	36.5	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	46.9
Q95%	0.8	0.2	0.2	1.8	1.7	26.7	0.2	27.5	16.8	3.7	1.5	0.4	0.2

Correlation between Hairiness and Diameter

LASERSPOT LST-V++

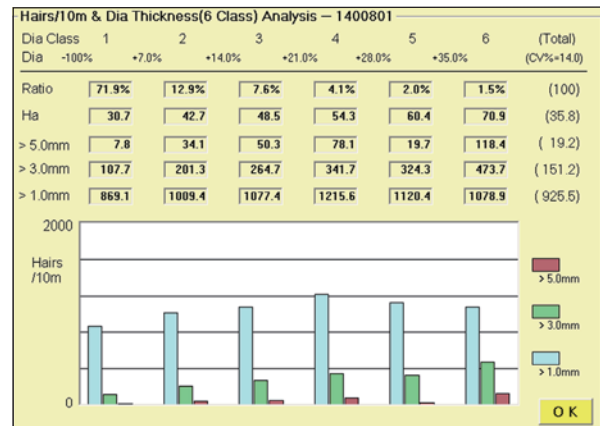
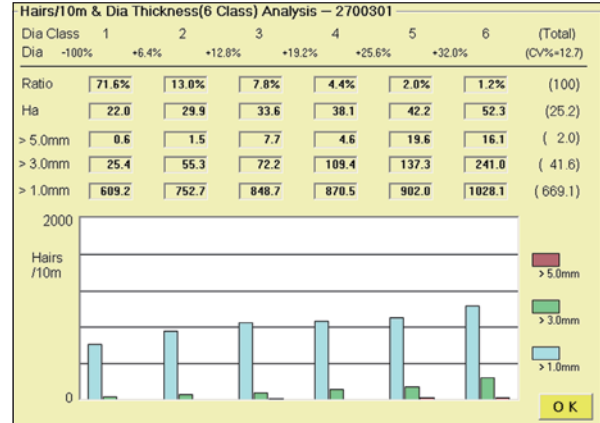
analyzes the measuring results for the correlation between hairiness and diametric thickness of the yarn.

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

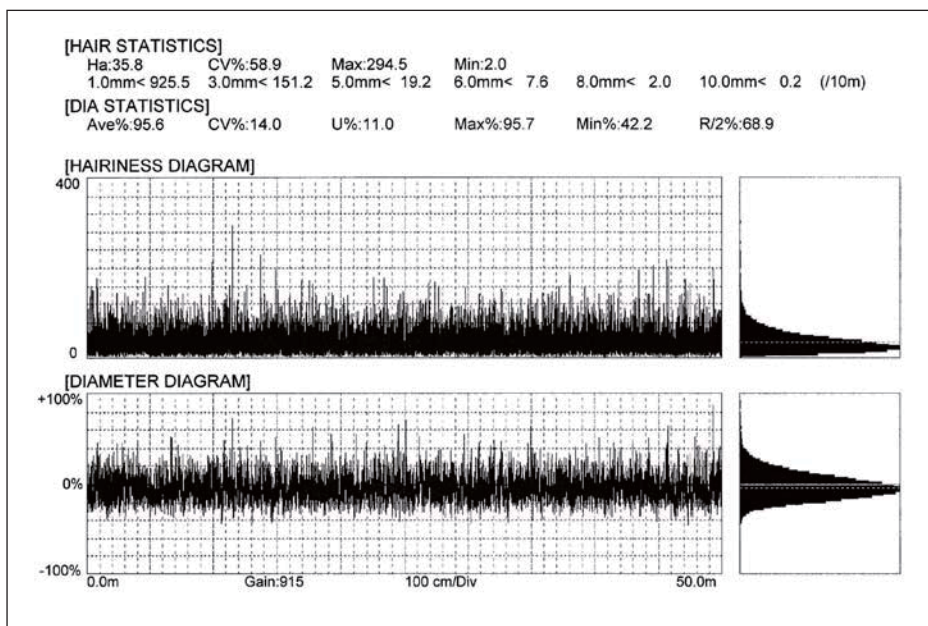
The bottom screen reveals the correlation for another yarn, the diametric CV% of which is 14.0%.

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.

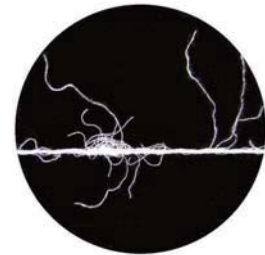
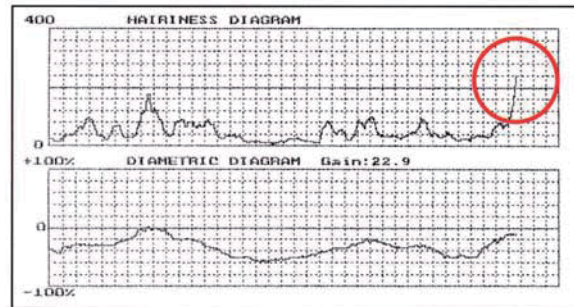
[DIA THICK/THIN (/100m)]			
Thick			
30%	6.0	0.0	0.0
15%	76.0	2.0	0.0
	1cm	7cm	15cm
-15%	60.0	0.0	0.0
-30%	0.0	0.0	0.0
Thin	Length Factor: 2cm		

Trapping Hairy Place and Coarse Place

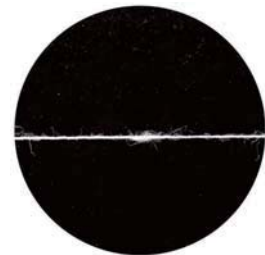
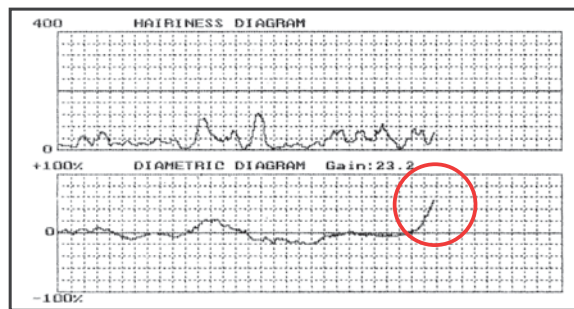
LASERSPOT LST-V++

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 320(W)x610(H)x415(D)mm; Approx 40kg
Application range:	150Nec to 1Nec, or 4Tex to 590Tex, approximately
Material feeding speed:	8, 25, 50, 100, 200 and 400m/min
PC & Peripheral devices:	Windows PC Enough size to store full size PCI board; (177(L) x 106(H) mm) *Users are kindly asked to prepare the peripheral devices at their local markets.
Supplied software:	Windows OS 7 or newer (32bit, 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 750VA maximum consumption in the whole system
Compressed air:	0.6 Mpa and about 4m ³ /h

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

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