Keisokki

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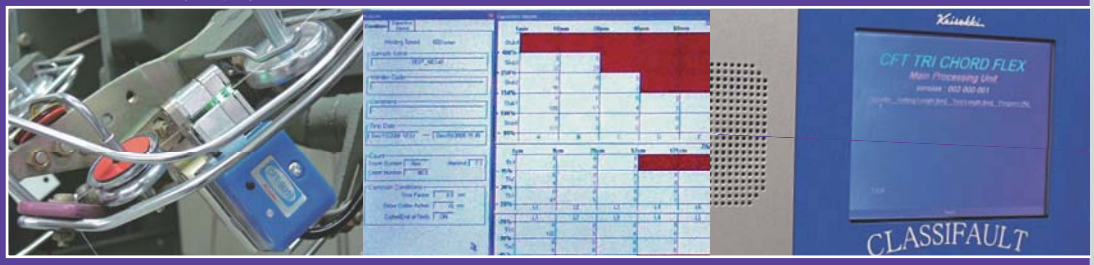
CLASSIFAULT

model CFT TRI CHORD Flex

Yarn fault classifying system



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What can CLASSIFAULT do?

Classification of conventional and foreign fiber faults

CLASSIFAULT TRI CHORD Flex classifies not only the conventional faults such as nep, slub, thick place and thin place but also foreign fibers, or contaminations, into a number of classes. Neps and slubs are classified into 25 classes, thick places into 15 classes, thin places into 15 classes and foreign fiber faults into 25 classes. Since the class limits are freely defined, the users can create their own classifications.

Histogram analysis

Woven/knitted fabrics are rarely flawed with undesirable stripes or streaks, which are caused by slight mass deviations in the yarn. Though such slight mass deviations are realized as minutely thick and thin places, it is practically impossible to eliminate them by yarn clearer. However, it is possible to find such minutely thick and thin places remaining in the yarn. **CLASSIFAULT TRI CHORD Flex** does it with **histogram** analysis.

An authority says that a slight thickness variation, if it is equal to or more than the evenness CV% of the yarn, appears as a streak in the woven or knitted fabric. For example, if the evenness CV% of a yarn is 15%, thick and thin places of +/-15% and more appear as streaks in the woven or knitted fabric. The **histogram** analysis serves to reveal the minute faults.

On the latter pages, a short report of **Practical usage of histogram and individual data** shows an instance of a customer solving the streak problem.

CV% evenness

CLASSIFAULT TRI CHORD Flex with CV% sensor (option) measures yarn evenness in CV% while it classifies conventional and foreign faults.

Composition

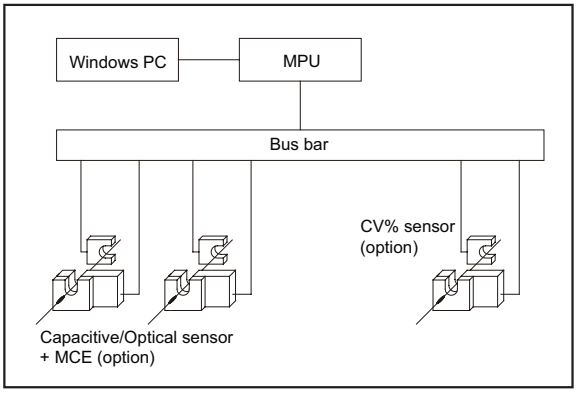

Fig.1 Standard composition with all options

Capacitive and optical sensors are available for conventional faults. For foreign matters, MicroEye (MCE) is supplied as an option.

With CV% sensor, CLASSIFAULT measures yarn evenness in CV%. The CV% sensor is optional.

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Class definition

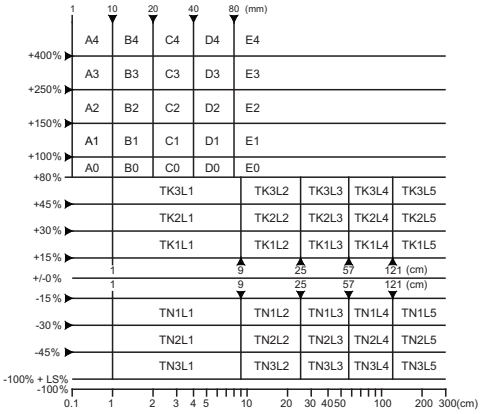


Fig.2 Classification for conventional faults

Note: Class limits marked with ▶ , ▼ and ▲ are defined by user. The class limits exemplified in the graphs are default.

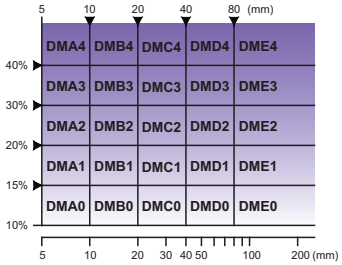


Fig.3 Classification for foreign matters

Conventional fault classification

Slub: 25 classes by 5 level limits of 0 to 4 and 5 length limits of A to E.
Thick place: 15 classes by 3 level limits of TK1, TK2 and TK3 and 5 length limits of L1 to L5.
Thin place: 15 classes by 3 level limits of TN1, TN2 and TN3 and 5 length limits of L1 to L5.

Foreign matter classification

Dark foreign matter: 25 classes by 5 level limits of 0 to 4 and 5 length limits of DMA to DME.

Technical data

Sensor for conventional faults: select appropriate ones out of the following types
- Capacitive: CFT-SU10 / -SU12 / -SU18 / -SU24 / -SU30
- Optical: CFT-SU35

Sensor for foreign matters: MicroEye, or MCE (option)
Sensor for CV% evenness: capacitive CV% sensor (option)
Maximum sensing positions: 12 positions; on each position the sensors for conventional faults, foreign matters and CV% evenness can be fitted.

Evaluation unit (EVU):
one EVU is provided for each sensing position.

Bus bar:
EVUs are put in one or more bus bars together and the bus bars are connected to MPU.

Main Processing Unit (MPU):
a console with Windows CE embedded.
The MPU is connected to the Windows PC by LAN.

Size of MPU: 544 (W) x 295 (H) x 395 (D) mm
Power supply for MPU: 85 to 265 Vac, 47 to 63 Hz

PC system:
- PC with English Windows XP installed and with LAN port
- Display (color, 1024 x 768 pixels)
- English keyboard and mouse
- Laser printer (for English Windows XP)

*Users are kindly asked to prepare the PC system at their local markets. If impossible, the manufacturer can provide it.

Winding speed:
300 to 1,500 m/min at every increment of 10 m/min

Practical usage of histogram and individual data table

One mill had a problem in their Nec 25 pure cotton yarn, which caused undesirable streak patterns in the woven fabric. They tested the yarn with their CLASSIFAULT-II, which was the preceding model, and then got the histograms shown in fig 4, 5 and 6. These histograms reveal thick and thin places exceeding +15%, -15% and +30%, respectively.

The histograms each show a long tail, which means that a number of thick and thin places that are very slight in mass variation but considerably long exist in the yarn. They adjusted the roving frames to repress the obstacles and then tested the yarn again on the CLASSIFAULT. As a result, the histograms shown in fig 7, 8, 9 and 10 were gained.

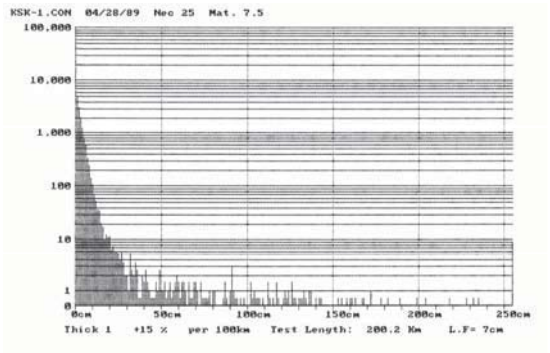


Fig.4

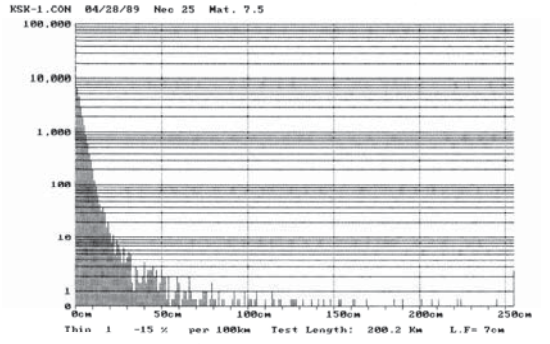


Fig.5

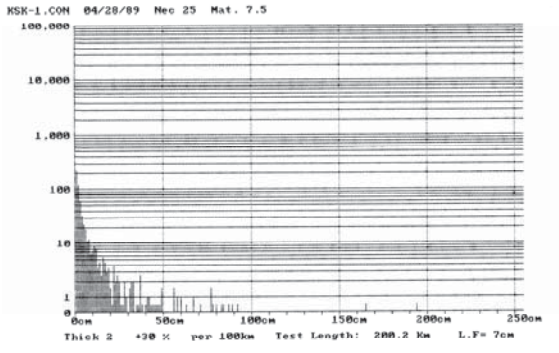


Fig.6

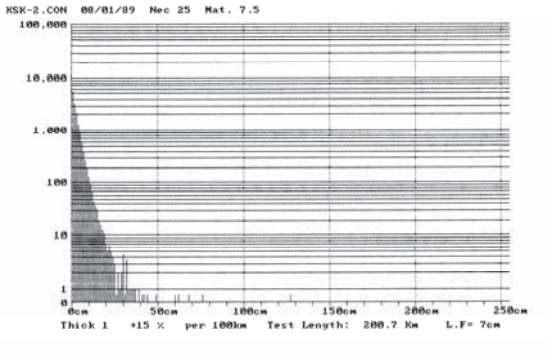


Fig.7

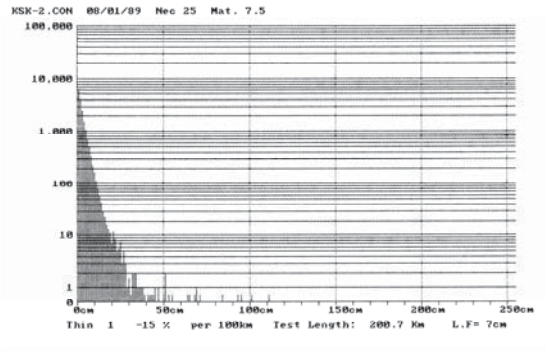


Fig.8

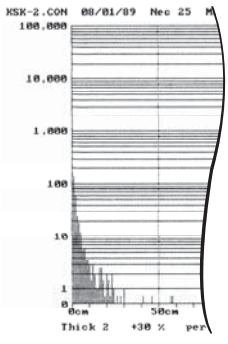


Fig.9

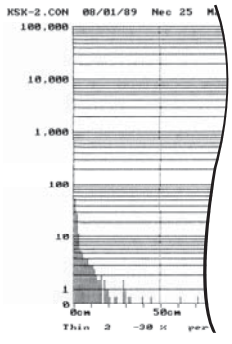


Fig.10

The histograms tell that the countermeasure pretty improves the yarn quality. However, strictly speaking, the tails of the histograms warp and swell a little. Thus, the yarn was not free from the problem yet.
In addition, the individual data tables of thick 1, thick 2, thin 1 and thin 2 (see fig 11) tell that the position "4 P" has much more faults detected than the others.

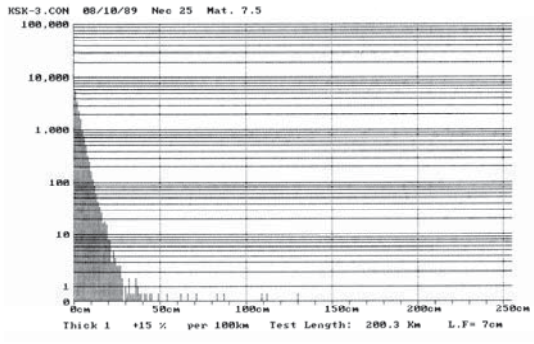


Fig.12

Test name: Count: Nec 25 Mat.: 7.5
Thick Table KSK-2.CON Date of Test: 08/01/89 L.F= 7cm

Thick 1 +15 %

Class	Total	1 P	2 P	3 P	4 P	5 P	6 P	per 100Km
1cm F1	97873	4357	4019	5419	4471	4599	4499	13888.5
9cm G1	1373	201	150	271	417	160	174	684.1
25cm H1	50	1	1	2	43	2	1	24.9
57cm I1	4	1	0	0	3	0	0	2.0
121cm J1	1	1	0	0	0	0	0	0.5
Total	29301	4561	4170	5885	5134	4684	4867	14600.1
Length	200.7Km	34.7	33.4	34.9	31.2	34.0	32.5	

Thick 2 +30 %

Class	Total	1 P	2 P	3 P	4 P	5 P	6 P	per 100Km
1cm F2	535	54	49	112	188	66	66	266.6
9cm G2	58	0	1	0	57	0	0	28.9
25cm H2	6	0	0	0	6	0	0	3.0
57cm I2	2	1	0	0	1	0	0	1.0
121cm J2	0	0	0	0	0	0	0	0.0
Total	601	55	50	112	252	66	66	299.5
Length	200.7Km	34.7	33.4	34.9	31.2	34.0	32.5	

Test name: Count: Nec 25 Mat.: 7.5
Thin Table KSK-2.CON Date of Test: 08/01/89 L.F= 7cm

Thin 1 -15 %

Class	Total	1 P	2 P	3 P	4 P	5 P	6 P	per 100Km
1cm K1	32446	4637	4500	6576	5510	5922	5421	16177.1
9cm L1	1652	213	161	357	415	273	233	823.2
25cm M1	79	6	1	6	62	1	3	39.4
57cm N1	11	2	1	0	7	1	0	5.5
121cm O1	0	0	0	0	0	0	0	0.0
Total	34208	4858	4663	6939	5994	6097	5657	17045.1
Length	200.7Km	34.7	33.4	34.9	31.2	34.0	32.5	

Thin 2 -30 %

Class	Total	1 P	2 P	3 P	4 P	5 P	6 P	per 100Km
1cm K2	230	20	16	44	101	25	24	114.6
9cm L2	46	3	0	0	43	0	0	22.9
25cm M2	10	1	0	0	9	0	0	5.0
57cm N2	2	0	0	0	2	0	0	1.0
121cm O2	0	0	0	0	0	0	0	0.0
Total	288	24	16	44	155	25	24	143.5
Length	200.7Km	34.7	33.4	34.9	31.2	34.0	32.5	

Fig.11

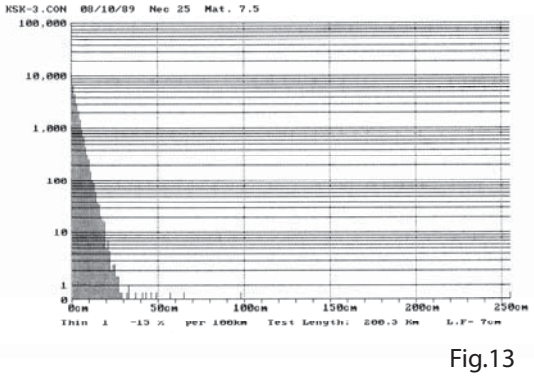


Fig.13

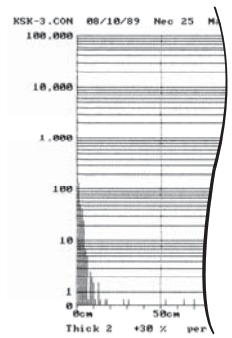


Fig.14

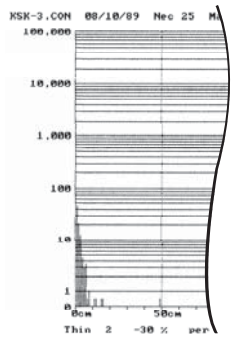


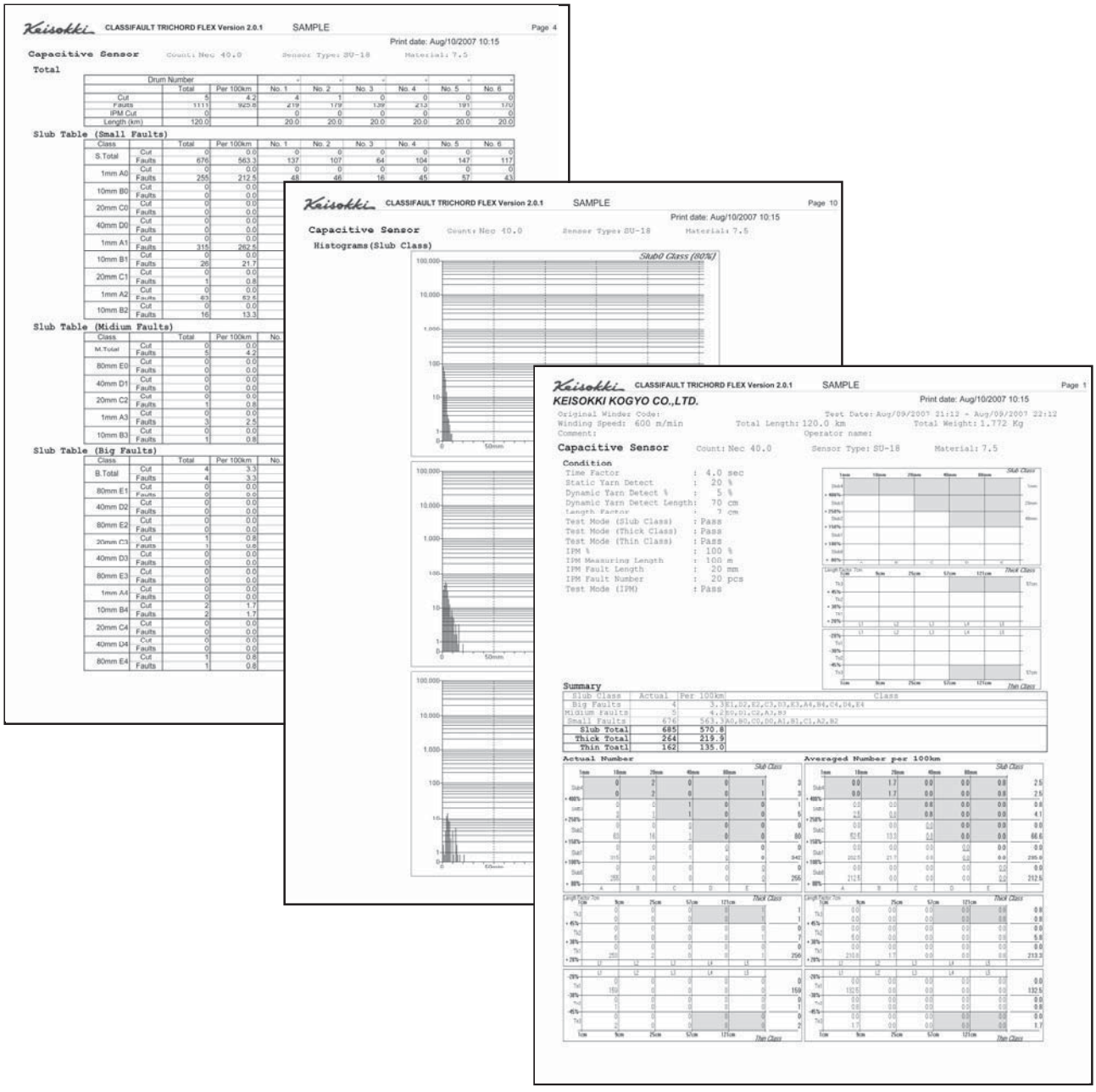
Fig.15

The spinner checked and repaired the spinning frame. After that, the yarn was tested again on the CLASSIFAULT and the histograms shown in fig 12, 13, 14 and 15 were obtained, neither warping nor swelling at the tails. Of course, the complained streak patterns in the fabric disappeared perfectly.

The story described above was presented thanks to the kindness of the spinner. We deeply appreciate their cooperation.

The successful use of the histogram analysis was carried out a long time ago. However, it is still instructive and shining even today.

Printout



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

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