

가

1.

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가 가

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가 가

가

가

가

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가

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Cotton Market Quality Evaluation

가

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가

가

.

Newton Burley

La Ferney Saco-Lowell Tru-Set 40's

. Graham Bragg

Newton, Burley La Ferney 15yds

Tru-Set

40's

12.5g

. 가

. Corley

Belger

.

Platt Brothers Ltd.

TM1.0

1.8

가

가

.

가

.

Barella

Sust

.

TM

1.0

1.3

가

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가

가

.

Cotton Quality Research Laboratory

Tru-Set

0.008

가

.

Tru-Set

-4,5

6mm Magne Cradle 17-B

.

가

.

가

.

가

2.

Tru-Set

Spin-Draft

가

14-22-30lb

6-9-12lb/in가

4가

MagneCradle 17-B

Tru-Set

Spin-Draft

. MagneCradle

8

MagneCradle

17-B

15lb/in

12lb/in

3.

75

55%RH

4

15

180rpm

Set

가

. MagneCradle 17-B

120rpm

180rpm

가

3%

가가

. Tru-Set

. Tru-

· MangeCradle

·

·

·

4가 .

Tru-Set MagneCradle .

가

1.0 SacoLowell Tru-Set

MagneCradle . Tru-Set

가

· Tru-Set

2

MagneCradle 3

4

·

: Tru-Set MagneCradle

52

1.0

TM1.3

Tru-Set MagneCradle 1.38,

180rpm 40^{'s} .

2.5%

1.00"~1.18", 50%

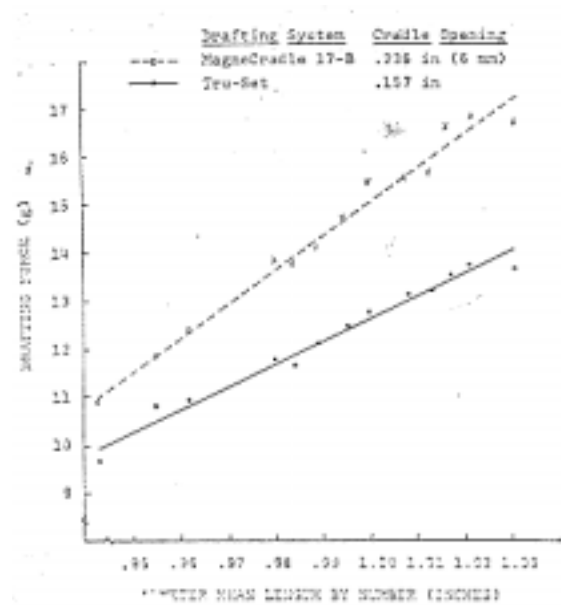
4.6"~5.2" 3.1~5.2

Fig.1 Tru-Set (0.236") MagneCradle (0.157")

4

10 1

Almeter 2



<Fig. 1> Effect of fiber mean length on Tru-Set and MagneCradle drafting force.

MagneCradle

Tru-Set

1% 가

Tru-Set 5%, MagneCradle 6% 가

Tru-Set 0.97, MagneCradle

0.99

: Tru-Set MagneCradle

가

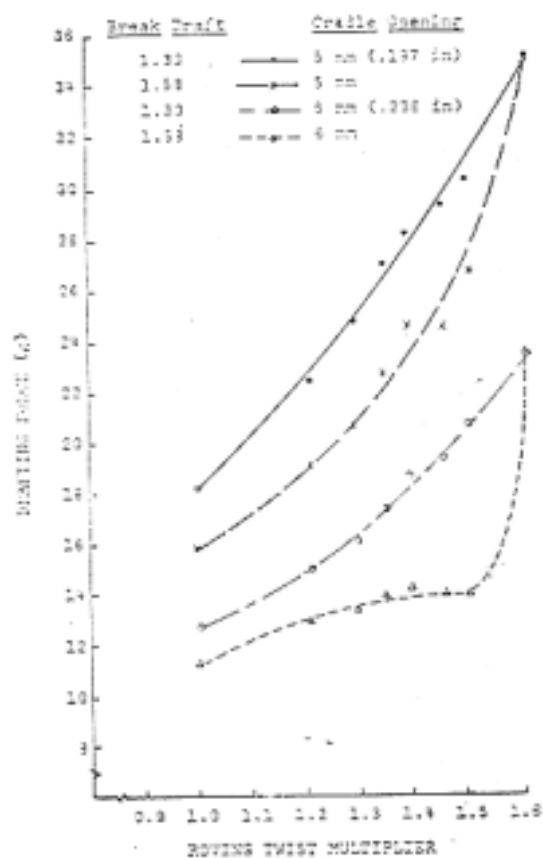
TM1.0 TM 1.6 0.1 .

2.5% 가 1.15" 4.3 .

1.30 1.58

40's . Tru-Set 0.173" ,

MagneCradle 5mm 6mm(0.197" 0.236") .



<Fig. 2> Effect of roving twist, break draft, and cradle opening
on MagneCradle 17-B drafting force.

Fig.2 MagneCradle 5mm, 6mm

가 1.30 1.58 가

.

1mm TM1.3, 1.15"

50% . Fig.1 $\frac{1}{16}$ "

60% . MagneCradle

25% 가

가 . 6mm

가 1.30 TM 1.3 1.1 17%

가 .

TM 가 1.0~1.5 MagneCradle (TM)²

. 가 1.30

가 5mm 6mm 0.996, 0.992

가 1.58 5mm 6mm 0.992, 0.910 .

Fig.3 0.173" Tru-Set

가 . Fig.2 3

Tru-Set MagneCradle .

Fig. 3 Tru-Set 가

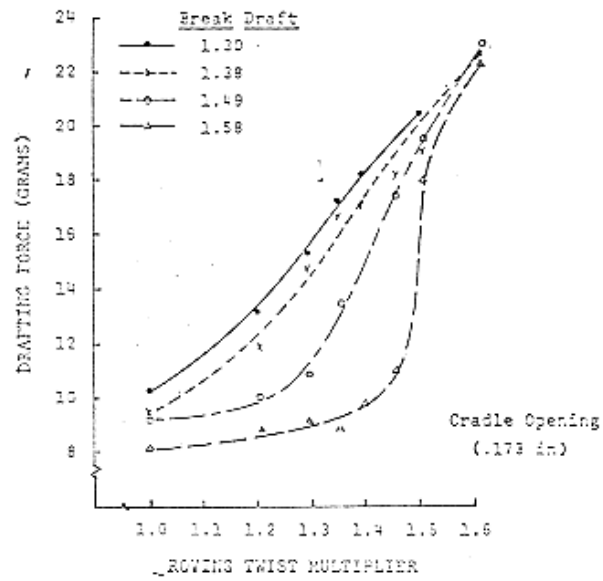
.

가 1.49 1.58 TM

1.3 1.4 TM 1.6

. Fig.3

가



<Fig. 3> Effect of roving twist and break draft on Tru-Set drafting force.

Tru-Set

12.5g

가

1, TM1.3

1.38 40's

Fig.4 Tru-Set 40's

12.5g

가

12.5g

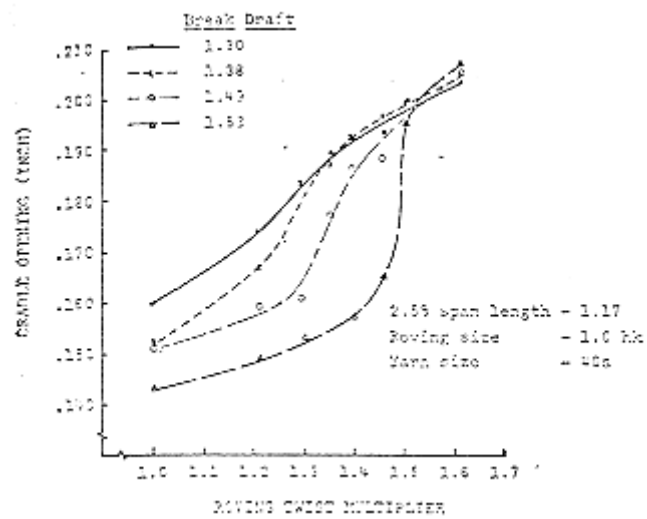
12.5g

Fig.4

1.5~1.6

가 1.3 가 ()

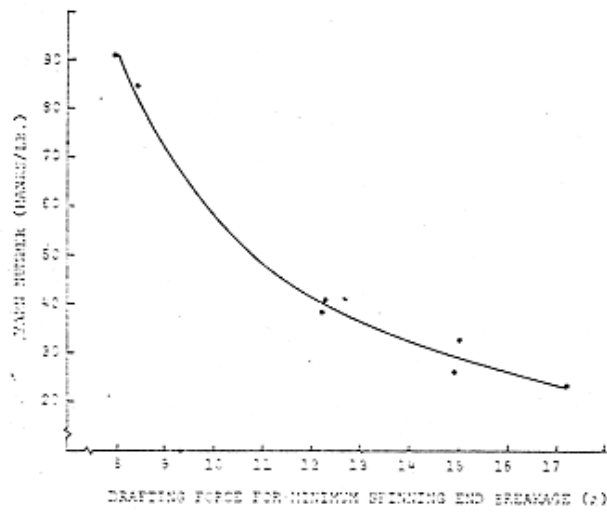
가



<Fig. 4> Twist multiplier vs. cradle opening for 12.5g drafting force
in the Duo-Roth TruSet drafting mechanism(40s yarn).

: Tru-Set 가
 Tru-Set 3 20's~90's
 7 .
 0.016" 가
 . TM 1.15~1.30 .
 1.38~1.58 34~40 .
 20's~90's .
 가 가
 .
 2.5% 가
 가 .
 . (Drafting
 tenacity) 가
 .
 .

Fig.5 Tru-Set



<Fig. 5> Relationship of yarn number to Duo-Roth Tru-Set drafting force for minimum spinning end breakage.

< > Ranges of spinning variables in Experiment

Yarn number		Number of spinning tests	Range of 2.5% span length, in.	Range of cradle opening, in.	Drafting force for minimum ends down, g	Drafting tenacity for minimum ends down, g/tex
hk./lb	g/km					
20.3	29.1	3	.89—.90	.125—.161	17.2	0.59
25.6	22.2	5	.88—.95	.133—.153	14.9	.67
32.5	18.2	3	.95—.98	.133—.141	15.0	.82
38.0	15.5	4	.95—.98	.133—.145	12.2	.79
39.6	14.9	24	1.01—1.16	.141—.173	12.3	.83
40.7	14.5	15	1.09	.157—.173	12.7	.88
50.0	7.4	12	1.10—1.23	.117—.157	8.4	1.14
90.0	6.6	4	1.14—1.23	.109—.168	7.9	1.20

가

1

. Tru-Set

0.98

$$gm = 3.36 \sqrt{\text{Tex}} - 0.534g$$

gm . S_{xy}
0.54g .

: Tru-Set MagneCradle 17-B ,

Tru-Set 40^{'s} ,
14
32 . 2.5% 1.09",
4.5 . 3
7,000 가 .
TM1.2 1.5 , 1.38 1.58
1 $\frac{5}{8}$ " 1 $\frac{13}{16}$ " .

MagneCradle 17-B 40^{'s}
.
8
2.5% 가 1.06", 4.4 20
.
TM 1.1, 1.3 1.5
1.38, 1.53, 1.73 1.78 .
a TM,
Tru-Set
.
가
1 $\frac{5}{8}$ " , 1.58

TM 1.2 가 . TM

1.5 40% .

b TM 가

MagneCradle

. 가 1.38 TM

1.3 가 . TM

1.1. 1.3 .

TM 1.5 50% .

< a> Effect of Tru-Set spinning draft variables on spinning end breakage and drafting force for minimum spinning end breakage of 40s carded yarn.

Roving twist multiplier	Break draft	Back roll setting, 1/16 in.	Spinning ends down, EDMSH	Force for minimum ends down, g	Cradle opening minimum ends down, in.
1.2	1.38	29	78	11.0	.165
1.2	1.38	26	61	12.7	.165
1.2	1.58	29	55	14.5	.149
1.2	1.58	26	49	10.9	.165
1.5	1.38	29	83	21.6	.173
1.5	1.38	26	60	18.6	.181
1.5	1.58	29	80	13.7	.173
1.5	1.58	26	56	17.8	.181

< b> Effect of Magne Cradle spinning draft variables on spinning end breakage and drafting force for minimum spinning end breakage of 40s carded yarn.

Roving twist multiplier	1.38 break draft		1.53 break draft		1.73 break draft		1.78 break draft		Mean	
	Ends down, EDMSH	Force for minimum ends down, g	Ends down, EDMSH	Force for minimum ends down, g	Ends down, EDMSH	Force for minimum ends down, g	Ends down, EDMSH	Force for minimum ends down, g	Ends down, EDMSH	Force for minimum ends down, g
1.1	25	15.6	37	14.7	55	13.7			39	14.7
1.3	12	12.6	29	16.0	25	14.8			19	14.5
1.5							29	21.5	29	21.5
Mean	18	14.1	25	15.4	40	14.2	29	21.5		

4.

1% Tru-Set 5%,
MagneCradle 6% .

MagneCradle
가 , 가
MagneCradle
.

MagneCradle 17-B Tru-Set
가 . Tru-Set 10
1mm(0.039") . Tru-Set 0.008"
가 MagneCradle
0.016" . MagneCradle

Tru-Set .

가 .
Corley 4.0 1 가 가
TM .
1.00" 1.10" 가
TM 9.1% . Fig.1 2% 가

Tru-Set MagneCradle

10% 12% 가

.

TM

1/4

.

가

가 .

.

가

.

가

.

가 .

TM

가

.

Tru-Set

가

TM1.5

TM 1.2

1.5TM MagneCradle
TM1.5

Fig.2, 3, 4

가