

TRADELINE & SEAM DISTORTION

BY: W. J. Hartlein
Eastern Regional Sales Manager

A review of the basic principles involved in felt guiding and control of tradeline distortion.

Factors that influence tradeline configuration are broken down into two major categories.

- Speed producing effects
- Distance producing effects

Influence on optimum felt operation is discussed.

WHAT HAPPENS IN THE NIP

BY: R. E. Staples
Application Manager

We have shown that the use of a piezo-electric crystal embedded in the top roll of a press section allows us to measure the pressure developed at each point in the nip as the crystal proceeds through the nip of the press. The interpretation of the resulting pressure gradient allows us to measure nip width, rubber roll deformation, and the shape of the pressure gradient.

Our measurements showed:

1. That the nip width decreases with increasing speeds.
2. That the rubber acts harder at increasing speeds.
3. That as the rubber of the rubber covered roll deforms, the nip region shifts toward the wet end of the machine.

It has been shown that the effect of nip width on water removal is extremely important in that a constant roll loading the nip width determines the amount of maximum pressure produced in the nip which is directly proportional to the amount of water removed from the stock. The nip width can be controlled by utilization of proper felt design, by the diameter of the press rolls, and by the hardness of the rubber covering.

Our studies have also shown that stock crushing is caused by the acceleration of water through the sheet in a lateral direction. Depending on the sheet, a certain critical acceleration cannot be exceeded without rupturing the fibers and causing stock crushing. Stock crushing can be controlled again by widening the nip through proper felt design or increasing the permeability of the felt through proper cleaning methods and proper felt design.

The double role that the felt plays in helping to control stock crushing can be defined as (1) absorbing energy (provides cushion), (2) providing void space to which the water can flow from the stock.

HIGH PRESSURE SHOWERS

BY: R. A. Jensen
Asbestos Cement Pipe Technical
Service Engineer

There are many opinions in regard to the influence of high pressure showers at various pressures, distances from the felt, distance between nozzles, effects on felt life, etc. However, we do know that high pressure showers can be used effectively in preventing premature fillup and also to reduce the amount of water usage which becomes more important as water systems are closed up.

The operation of high pressure showers in relation to felt design specifications is of great importance.

For this Workshop, Huyck Felt conducted an accelerated high pressure shower program on the Wear Tester. The test program was conducted with seven Asbestos Cement Pipe felts having different design specifications. These were designated as felts A, B, C, D, E, F, and G. All seven felts were tested in group 1 under the following conditions:

- Needle shower nozzle - No. 60 (0.040")
- Inside (back of felt) shower application
- Distance from felt - 4"
- Shower pressure to 500 psi
- Shower operated for 30 hours
- Shower oscillated at 25 rpm
- Nozzle spacing - 1-1/2"
- Shower stroke - 3"
- Felt tension - 16.7 pli
- Press nip pressure - 120 pli
- Wear conditions simulated with sandstone block on each side of felt
- Speed of operation - 755 fpm for accelerated testing

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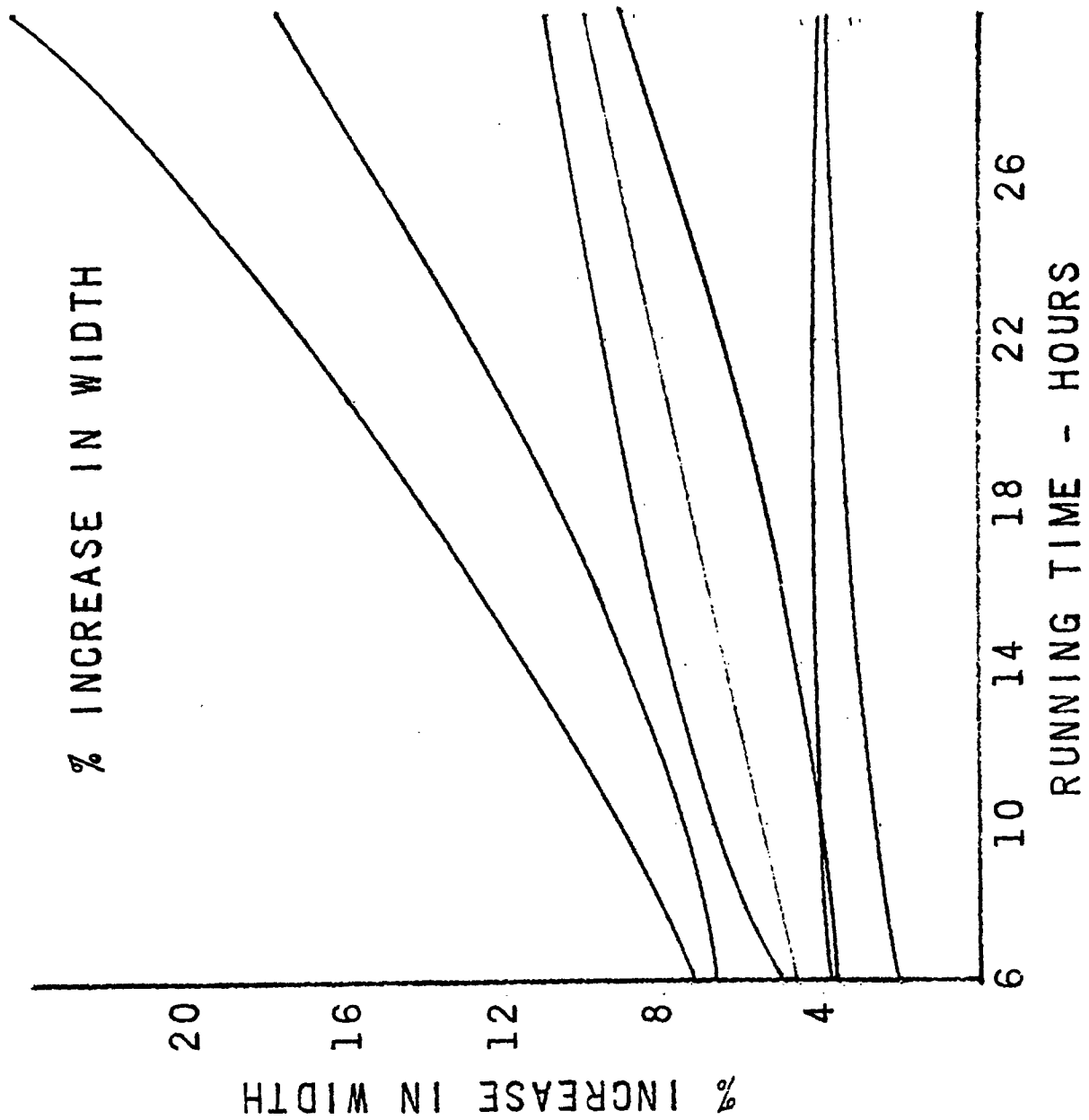
In group 2, another set of felts of the same seven different felt constructions were run under varying conditions.

In all of the 14 felts tested, hole elongation was simulated by cutting a 1" x 2" hole in the felt's machine direction before starting the test runs.

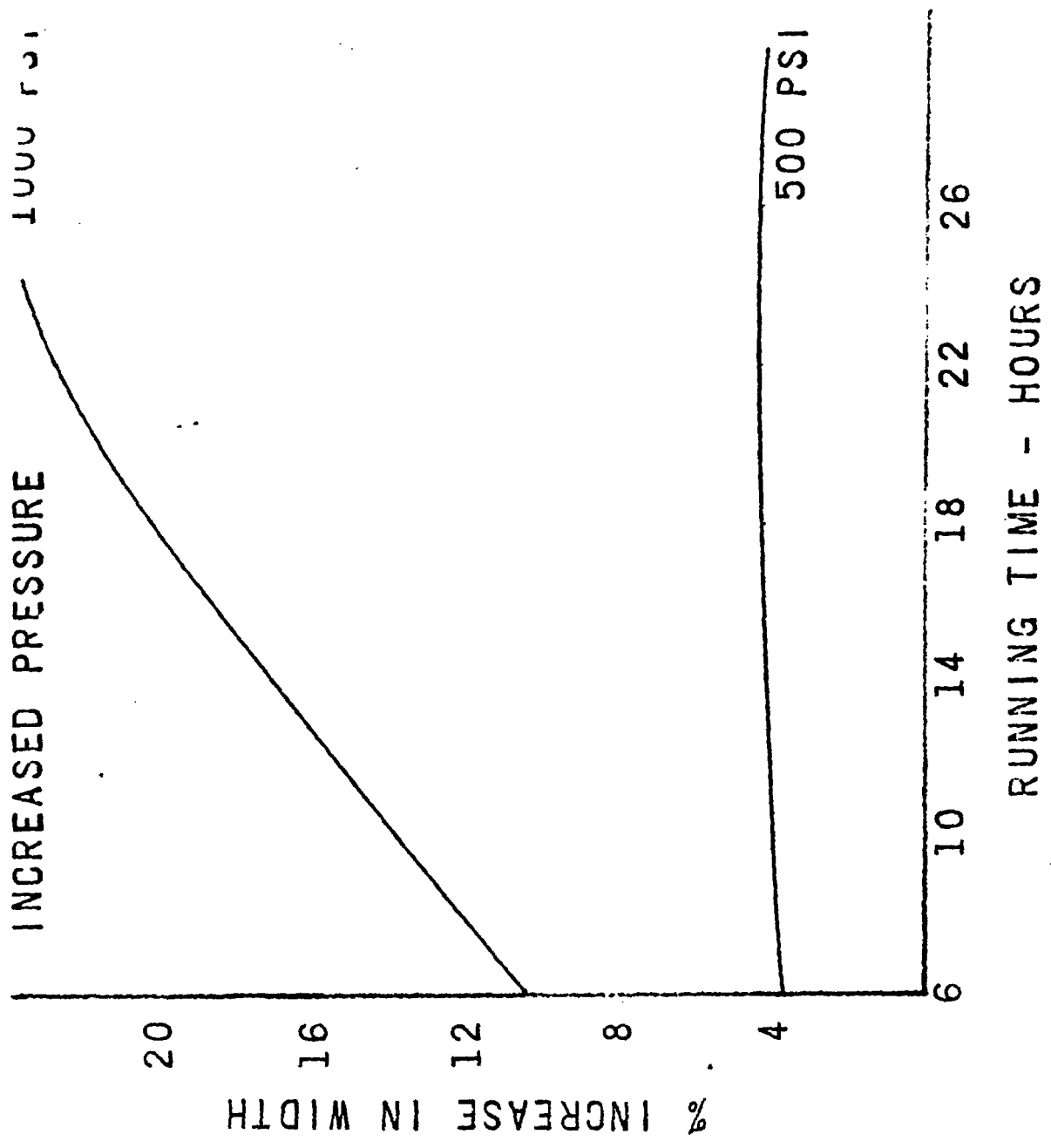
The results of this study are discussed. Attached are graphical representations of the findings.

WEAR TESTER FELTS

GROUP 1	GROUP 2
.040 NOZZLES	A 1000 PSI
BACK SIDE - 4"	B 250 PSI
500 PSI - 30 HRS.	C 1" DISTANCE
25 R.P.M.	D .055 ORIFICE
1-1/2" BETWEEN NOZZLES	E 33.4 PLI
3" STROKE	F SHEET SIDE
16.7 PLI TENSION	G STOP OSCILLATING & STOP FELT
120 PLI NIP PRES.	
1 SAND STONE BLOCK ABRADING EACH SIDE	
MACHINE SPEED 955'/MIN.	

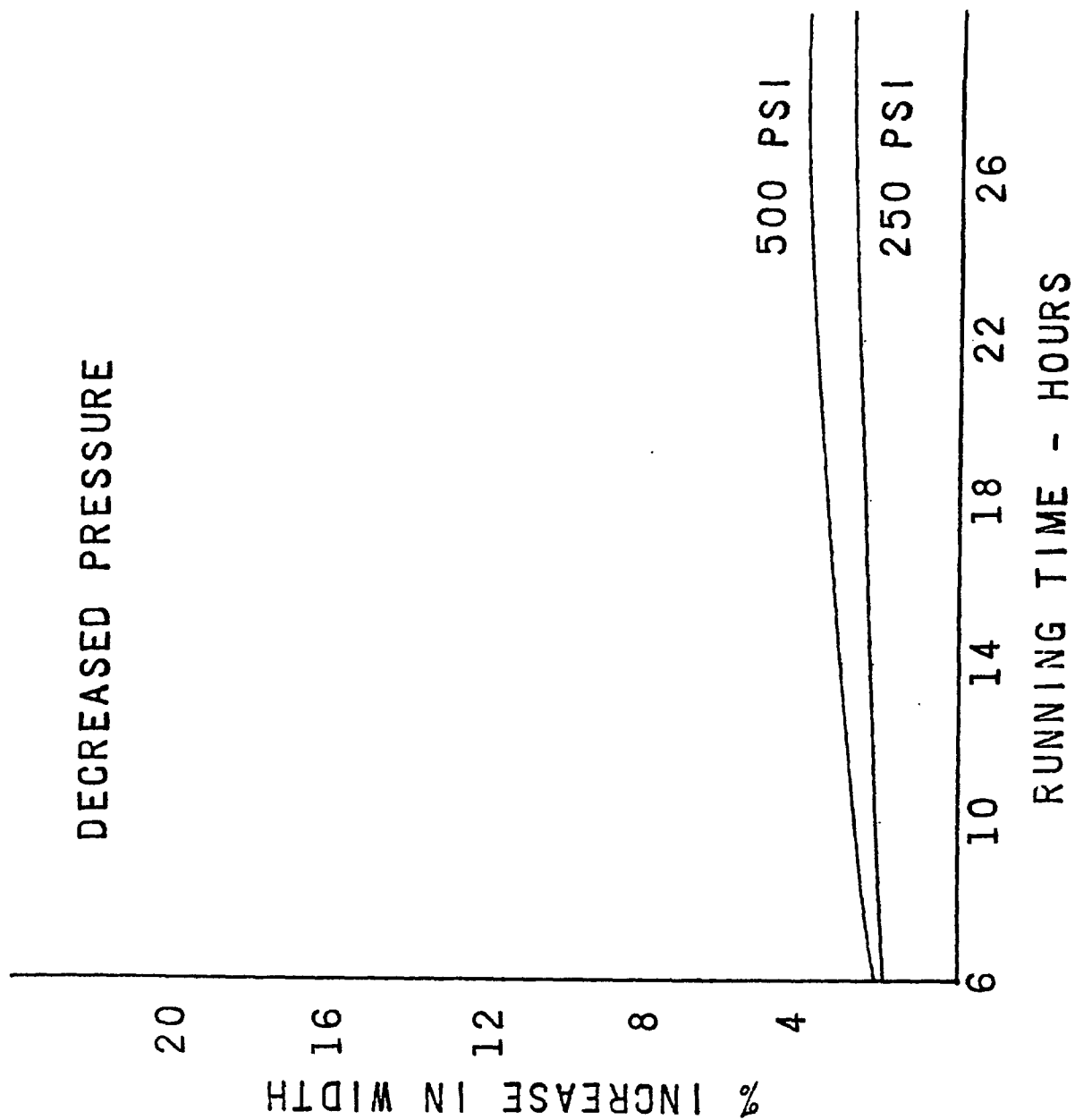


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FABRIC TEST REPORT

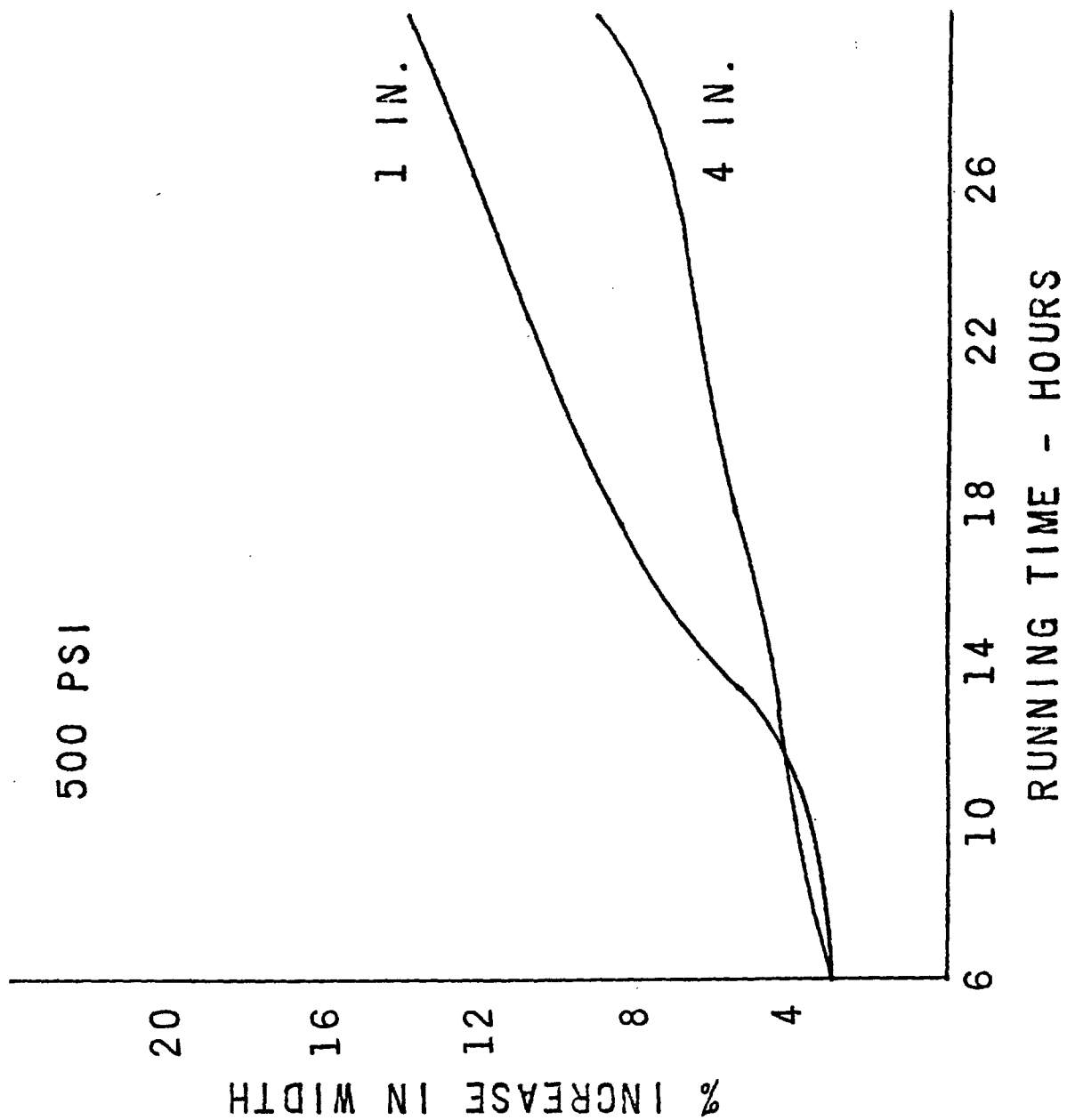
FELI	A	A-1	A-2
MD STRENGTH #	864	816	804
% ELONGATION @ BREAK	44	37	38
CMD STRENGTH #	369	274	67
% ELONGATION @ BREAK	75	63	39
CALIPER, INCHES @ 2 SPG.	.173	.132	.128



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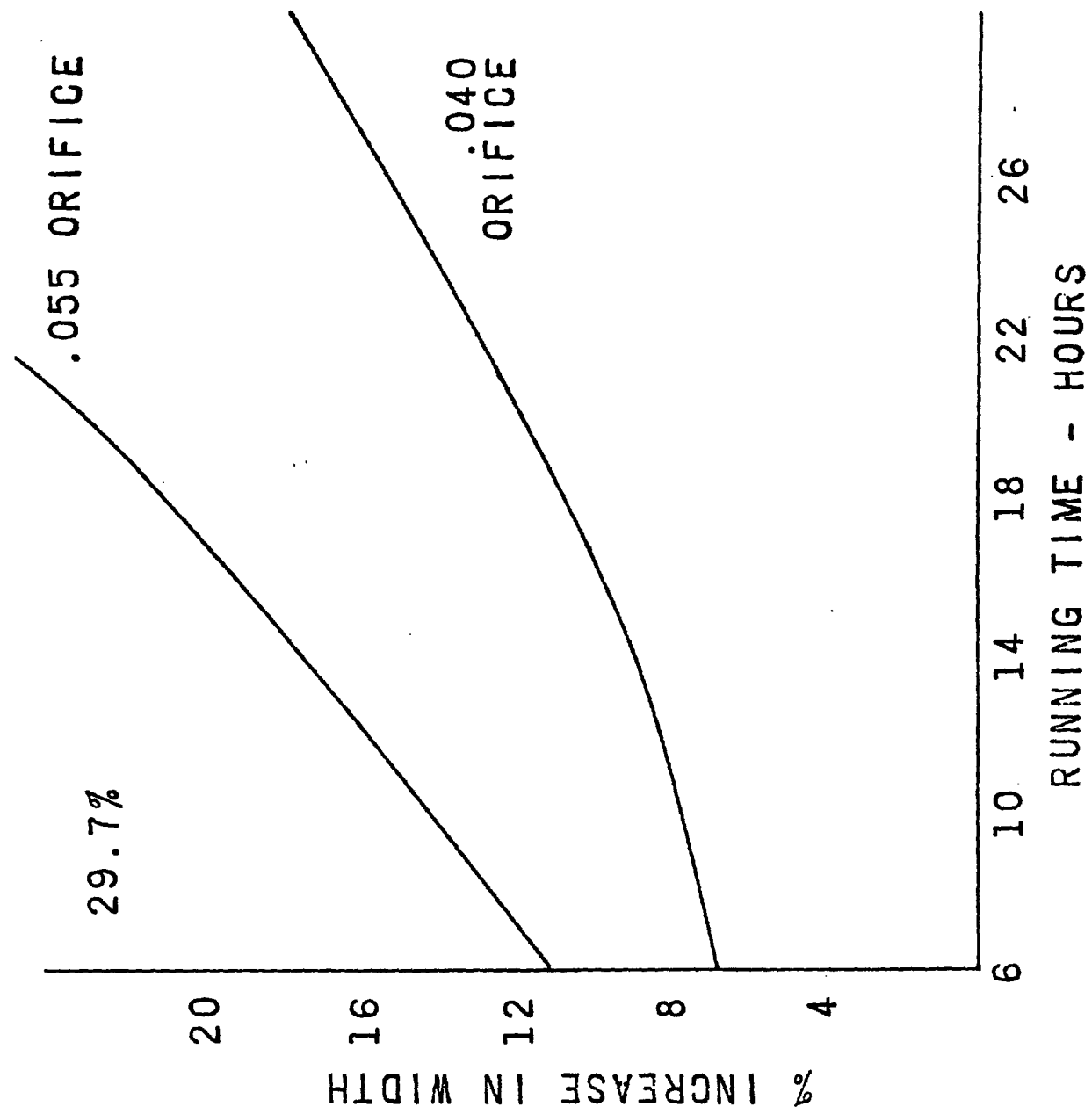
FABRIC TEST REPORT

<u>FELT</u>	<u>B--</u>	<u>B-1</u>	<u>B-2</u>
MD STRENGTH #	856	692	774
% ELONGATION @ BREAK	38	30	30
CMD STRENGTH #	528	150	262
% ELONGATION @ BREAK	92	61	70
CALIPER, INCHES @ 2 SPG.	.173	.121	.132



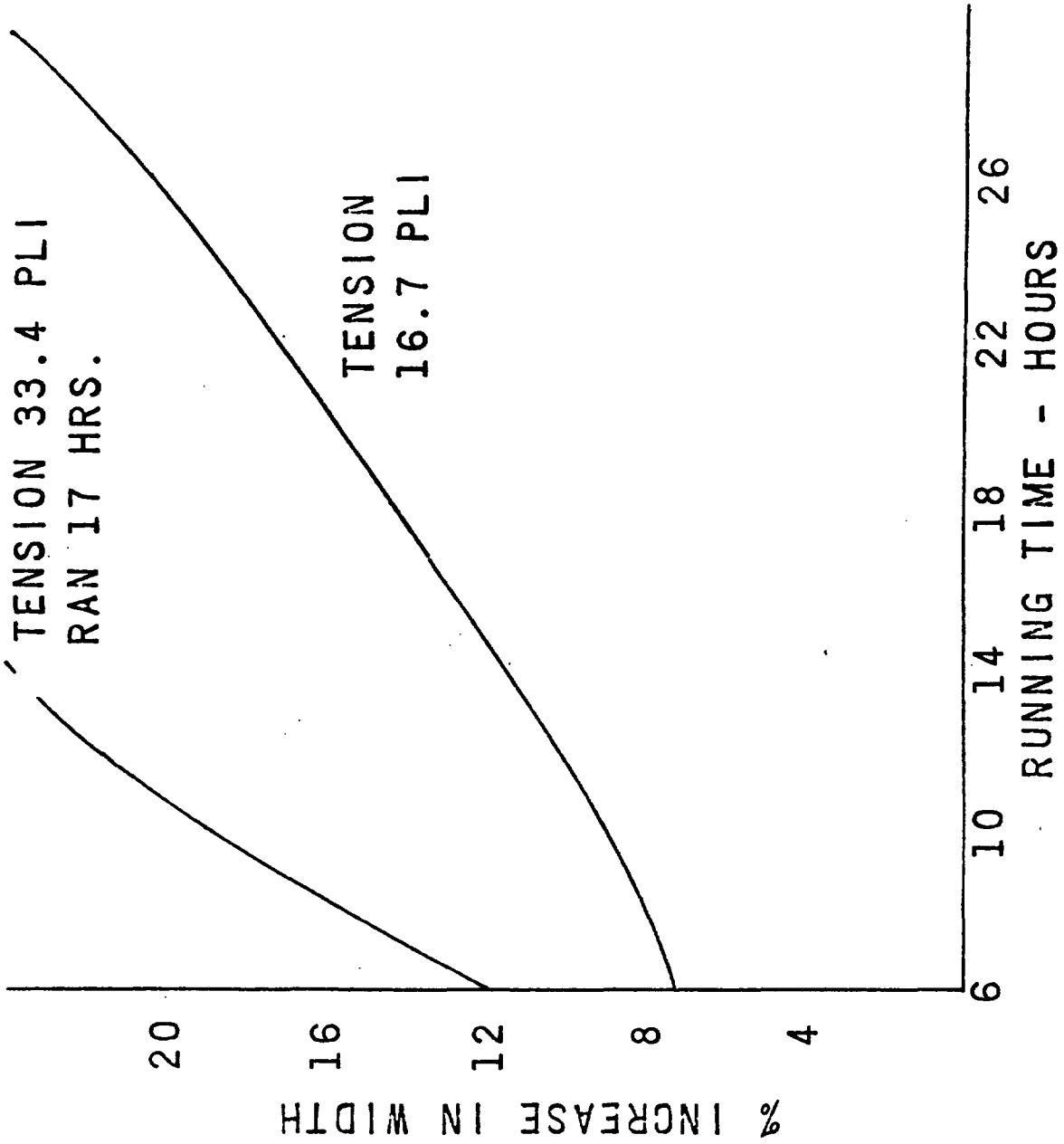
FABRIC TEST REPORT

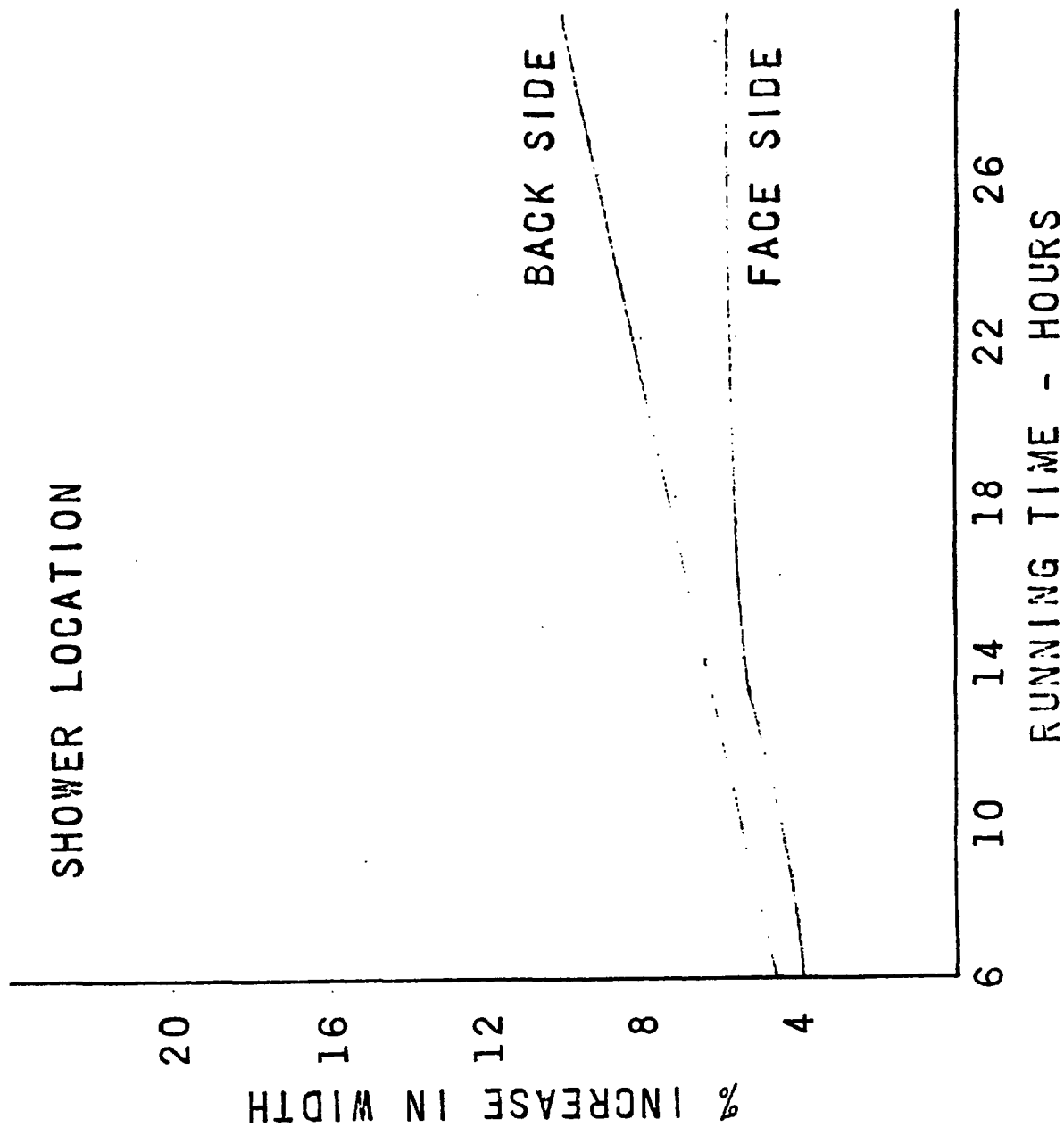
FELT	C	C-1	C-2
MD STRENGTH #	958	924	848
% ELONGATION @ BREAK	52	41	40
CMD STRENGTH #	294	65	41
% ELONGATION @ BREAK	82	46	43
CALIPER, INCHES @ 2 SPG.	.163	.120	.120



FABRIC TEST REPORT

FELT	D--	D-1	D-2
MD STRENGTH #	1014	674	686
% ELONGATION @ BREAK	49	36	39
CMD STRENGTH #	183	41	28
% ELONGATION @ BREAK	67	33	30
CALIPER, INCHES @ 2 SPG.	.141	.105	-





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FABRIC TEST REPORT

<u>FELT</u>	<u>F</u>	<u>F-1</u>	<u>F-2</u>
MD STRENGTH #	788	704	710
% ELONGATION @ BREAK	37	30	29
CMD STRENGTH #	272	84	250
% ELONGATION @ BREAK	81	63	83
CALIPER, INCHES @ 2 SPG.	.166	.121	.122

FABRIC TEST REPORT

<u>FELT</u>	<u>---</u>	<u>E-1</u>	<u>E-2</u>
MD STRENGTH #	1036	670	528
% ELONGATION @ BREAK	50	36	37
CMD STRENGTH #	193	42	19
% ELONGATION @ BREAK	64	35	36
CALIPER, INCHES @ 2 SPG.	.134	.098	-

FABRIC_TEST_REPORT

<u>FELT</u>	<u>F--</u>	<u>F-1</u>	<u>F-2</u>
MD STRENGTH #	788	704	710
% ELONGATION @ BREAK	37	30	29
CMD STRENGTH #	272	84	250
% ELONGATION @ BREAK	81	63	83
CALIPER, INCHES @ 2 SPG.	.166	.121	.122

ASBESTOS CEMENT PIPE FELTS

BY: R. A. Jensen
Asbestos Cement Pipe Technical
Service Engineer

The evolution of Asbestos Cement Pipe felts is traced from
initial woven constructions of cotton and wool, to woven
constructions of low synthetic levels to today's needled
felts of various synthetic contents above 50% and the advanced
HUVMESH® felt designs.