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P.2

UNIVERSITY OF MANITOBA

**"IN-SITU CHARACTERIZATION OF MATERIAL PROPERTIES  
FOR  
THE DESIGN AND EVALUATION OF FLEXIBLE PAVEMENTS"**

A Thesis  
Presented to the Faculty of Graduate Studies  
in Partial Fulfilment of the Requirements for  
The Degree of **Doctor of Philosophy**  
in  
the Department of Civil and Geological Engineering

by

**Gani Venkataraman GANAPATHY**

**VOLUME 1 - Text, Figures and Tables**

**February, 1994**

IN-SITU CHARACTERIZATION OF MATERIAL PROPERTIES FOR THE  
THE DESIGN AND EVALUATION OF FLEXIBLE PAVEMENTS

BY

GANI VENKATARAMAN GANAPATHY

A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements for the degree of

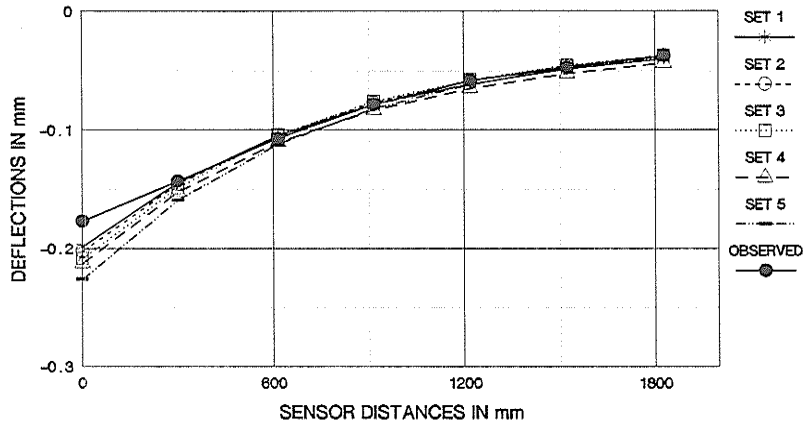
DOCTOR OF PHILOSOPHY

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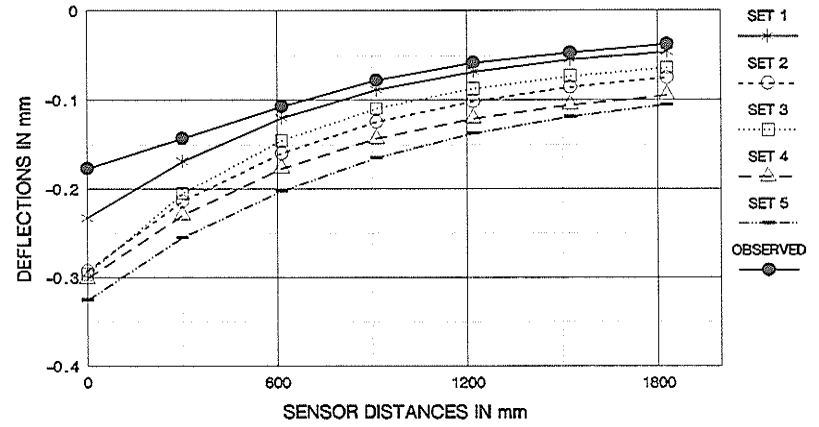
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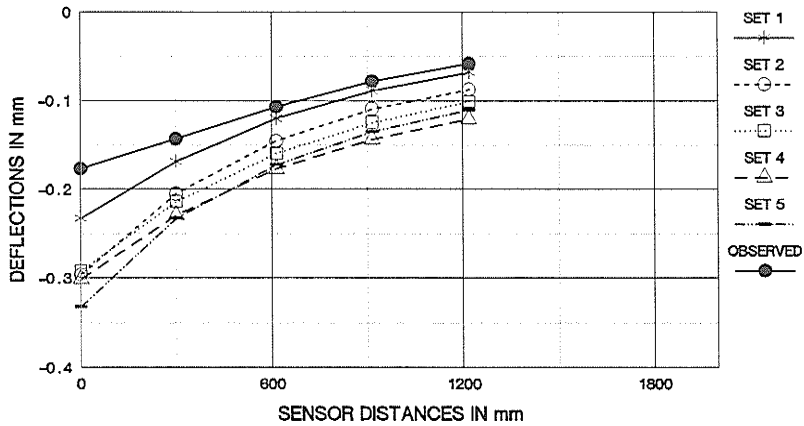
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

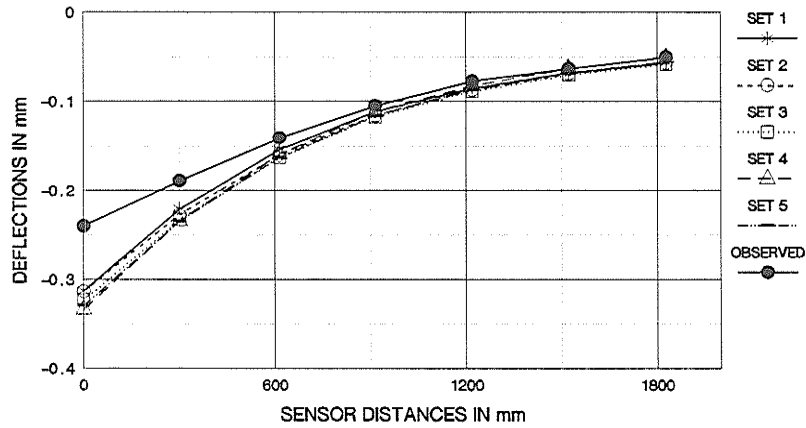


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

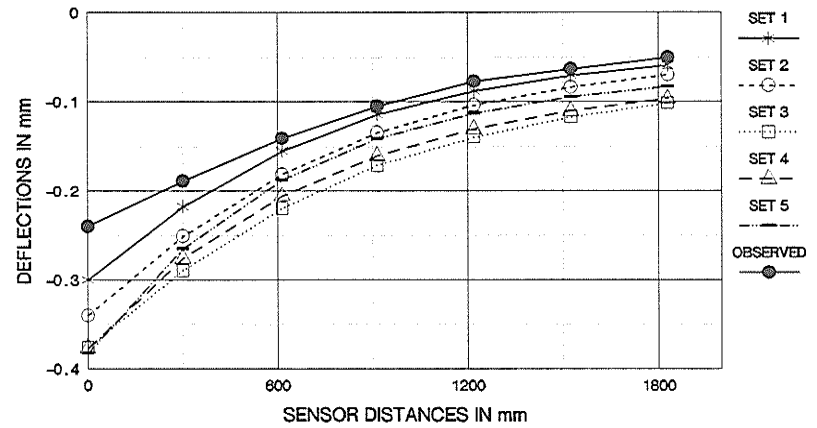
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CALCULATED AND OBSERVED DEFLECTION BASINS

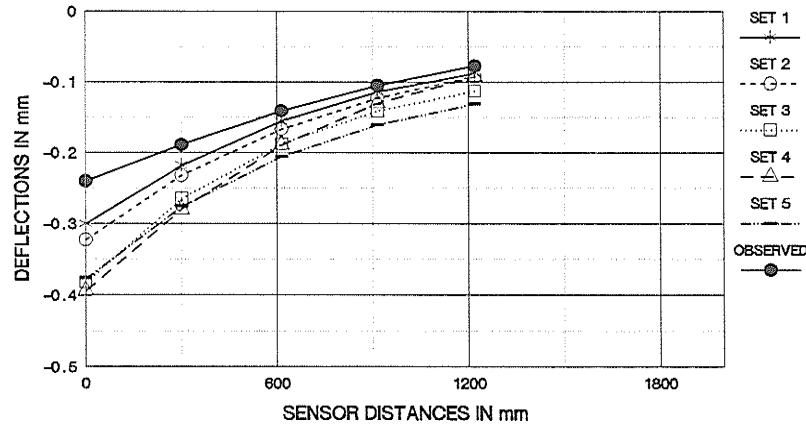
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

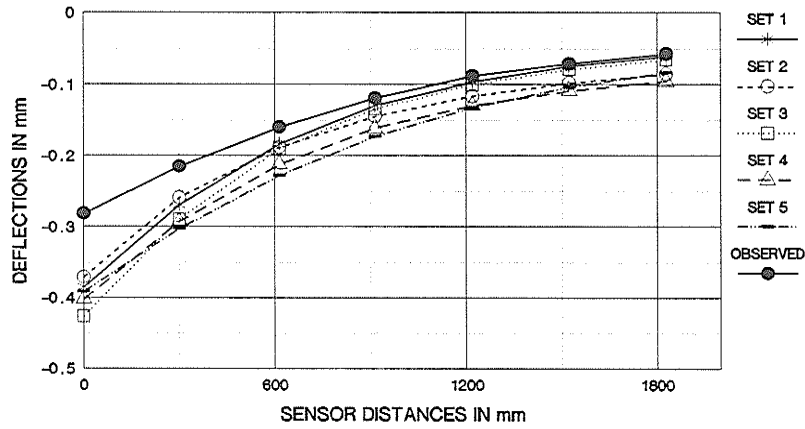


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

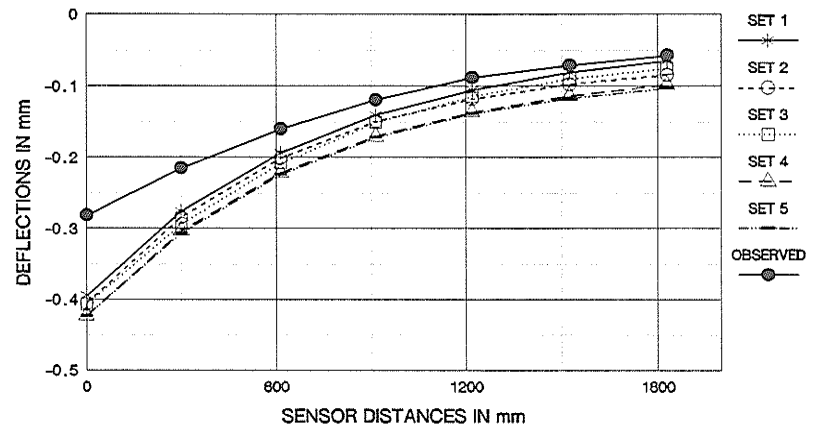
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CALCULATED AND OBSERVED DEFLECTION BASINS

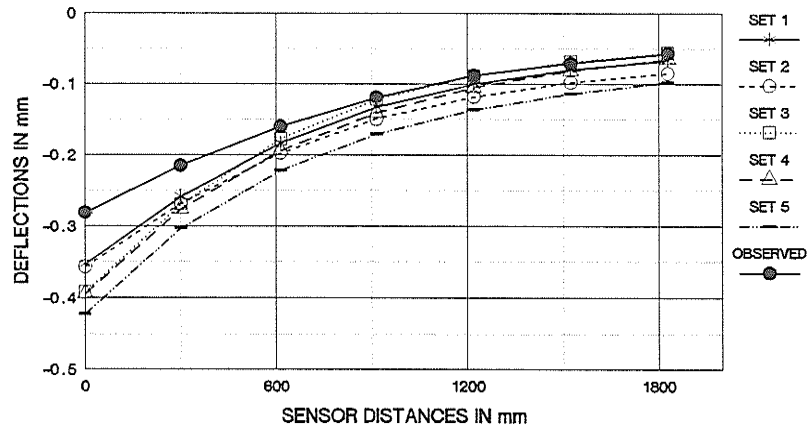
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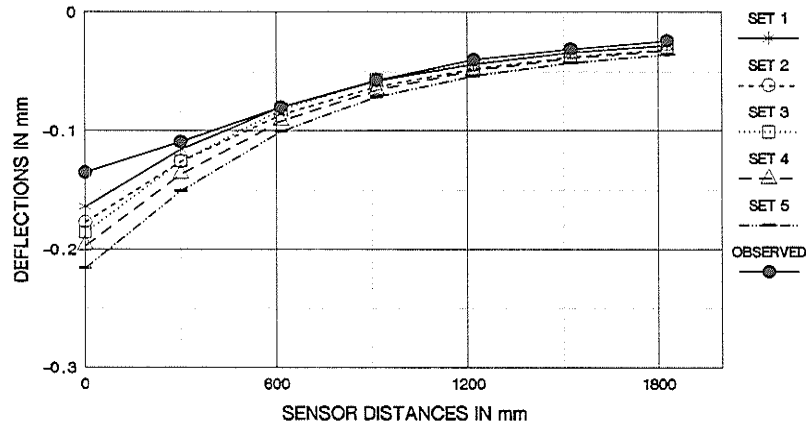


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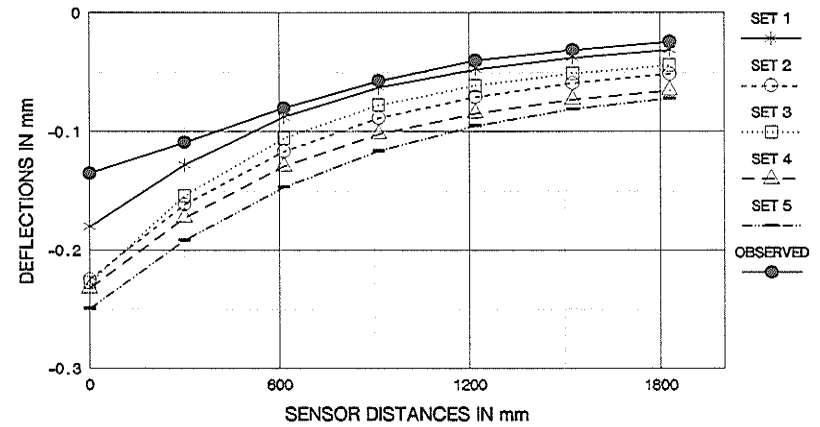
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CALCULATED AND OBSERVED DEFLECTION BASINS

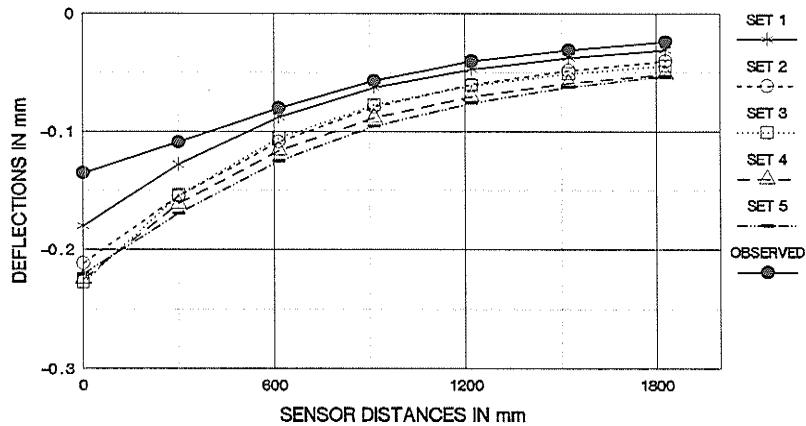
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OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

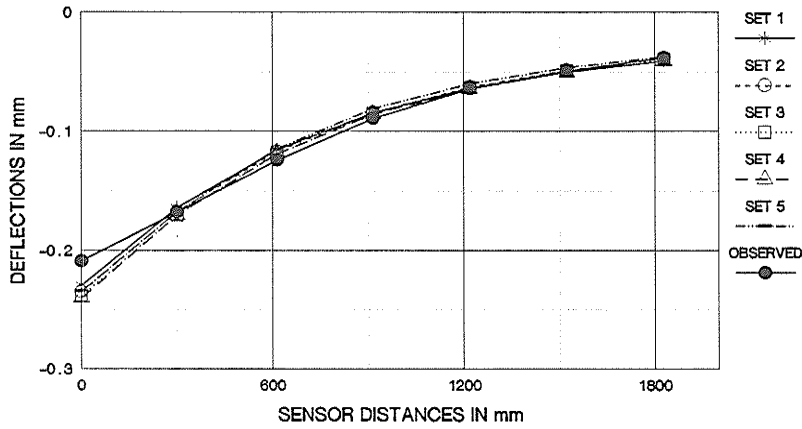


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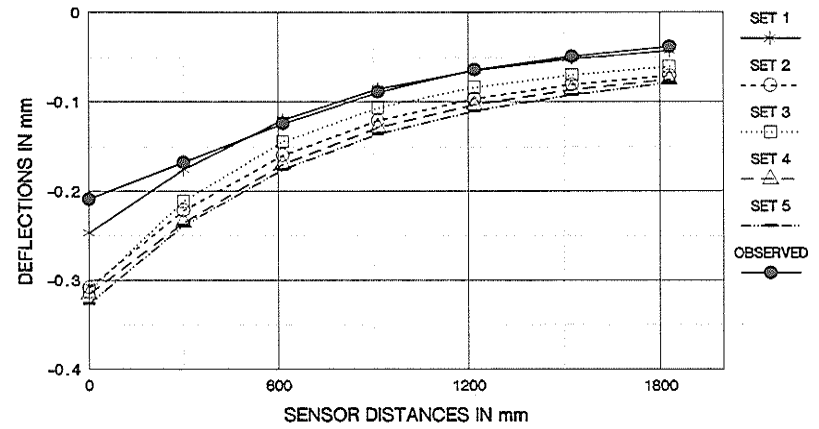
THUNDER BAY: RWY 12-30: STA. 5 + 300 R LOAD: 730 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

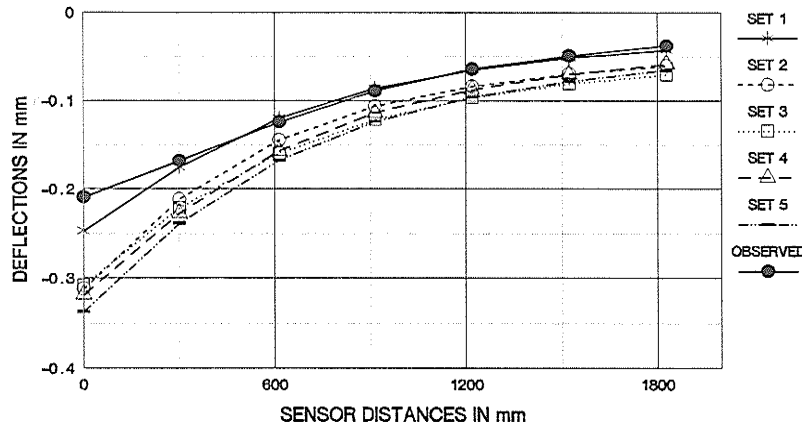
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION

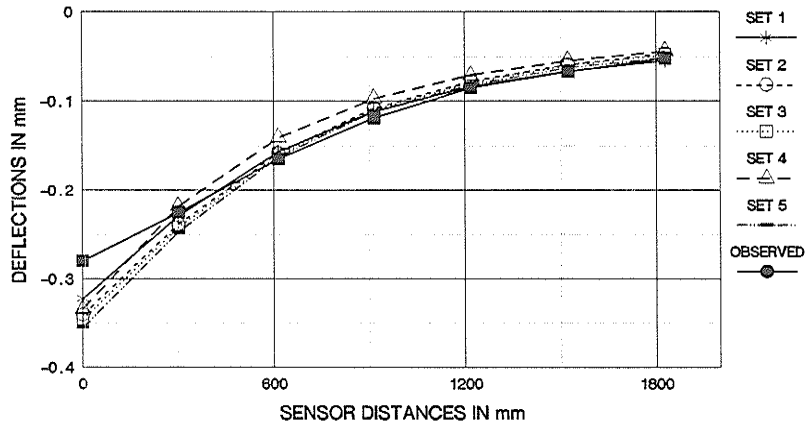


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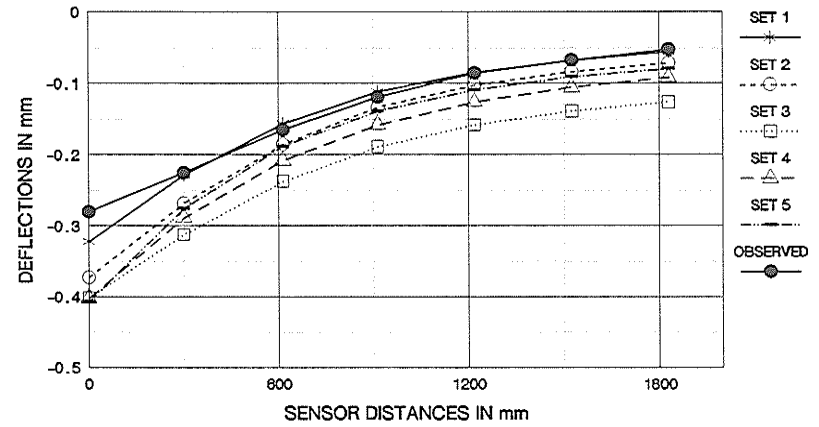


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 CALCULATED AND OBSERVED DEFLECTION BASINS

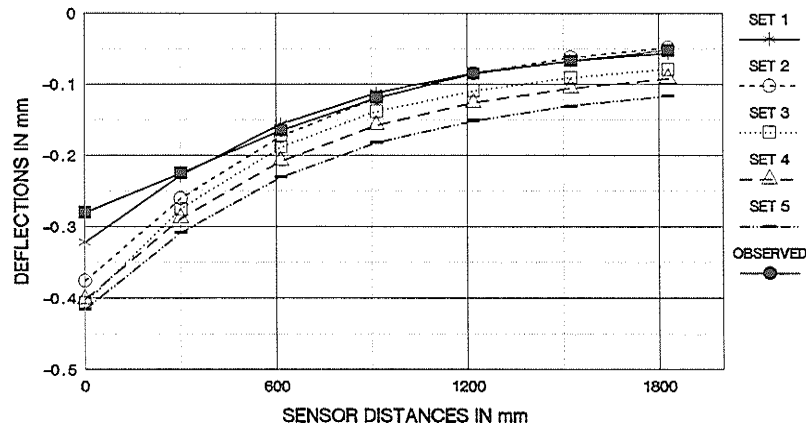
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



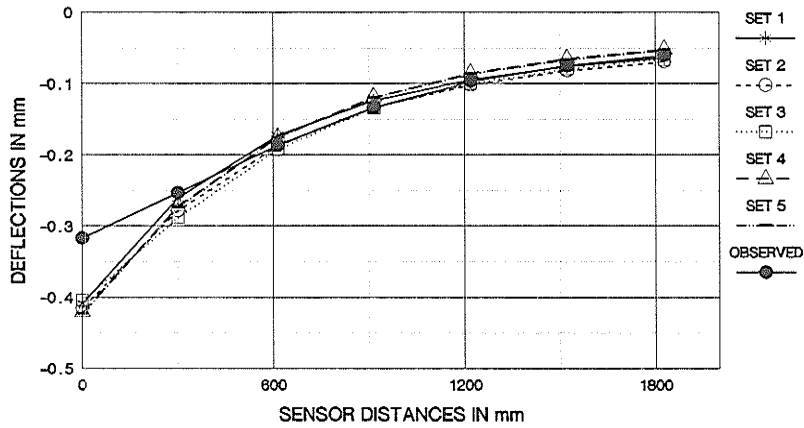
OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



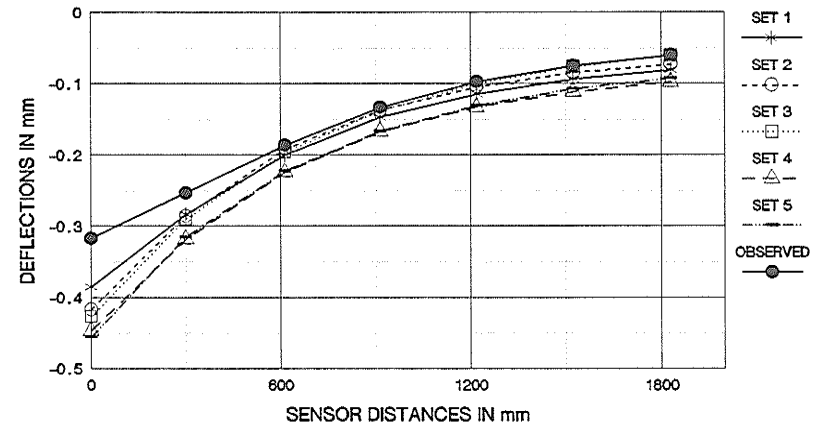
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 CALCULATED AND OBSERVED DEFLECTION BASINS



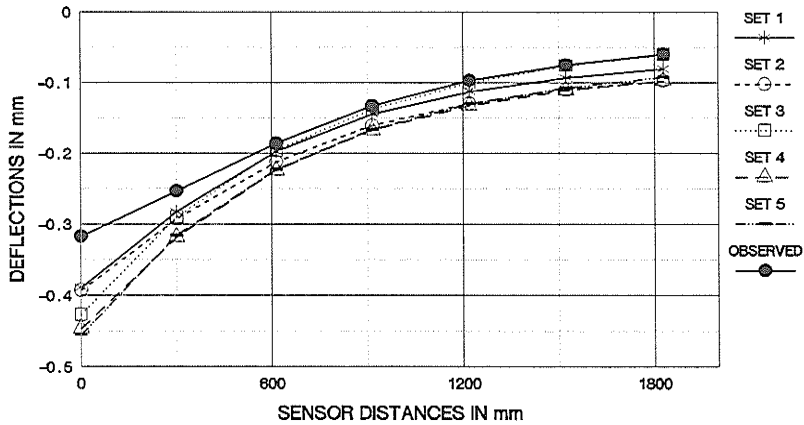
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

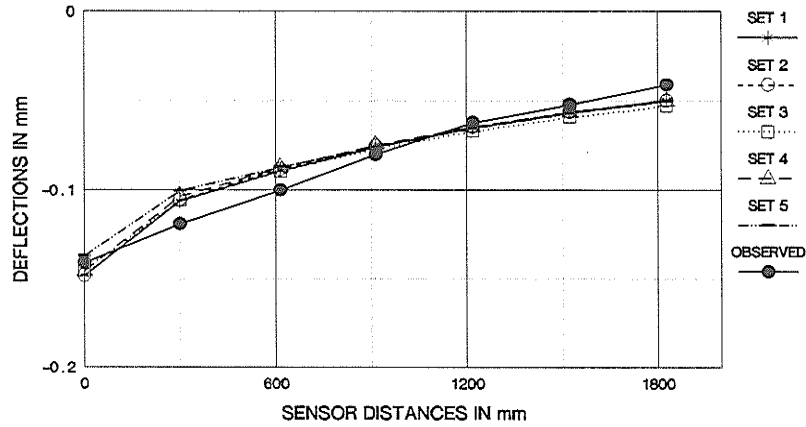


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

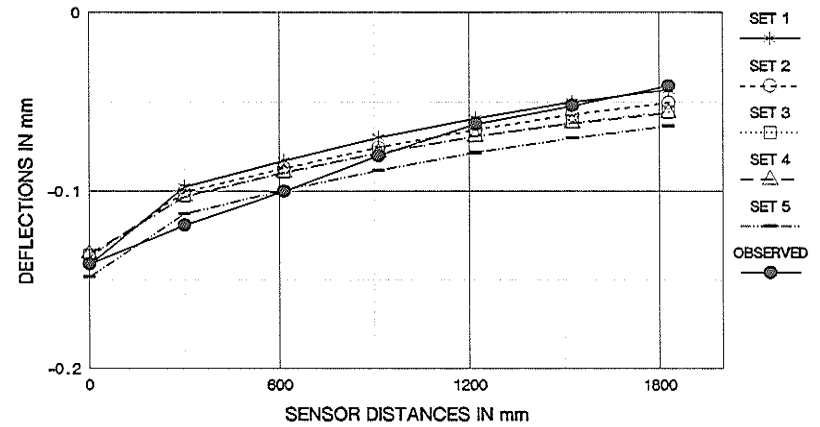
THUNDER BAY: RWY 12-30: STA . 5 + 300 R LOAD: 1479 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

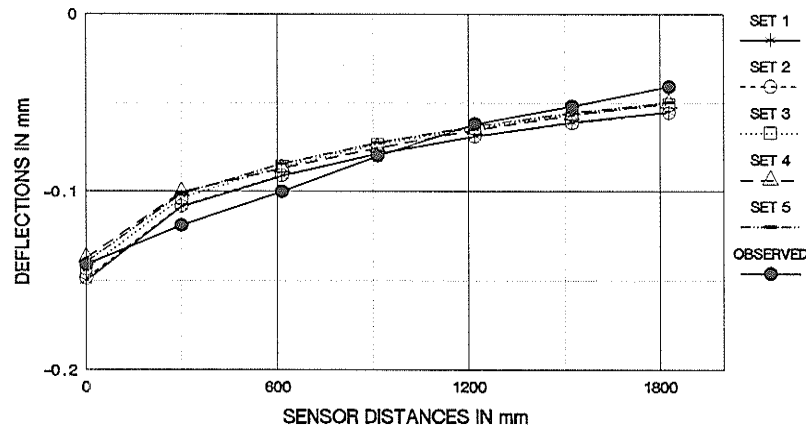
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

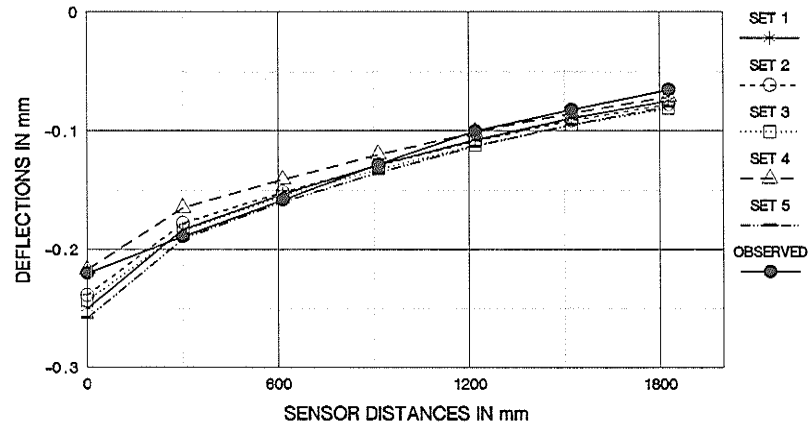


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

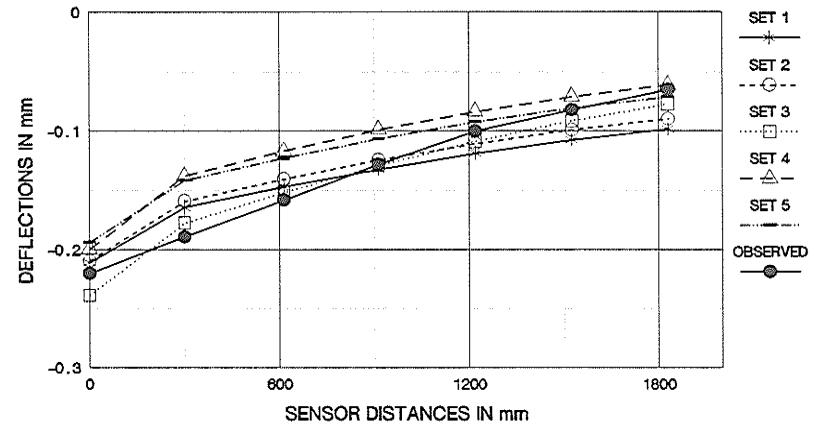
THUNDER BAY: RWY 12-30: STA. 5 + 500 R LOAD: 706 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

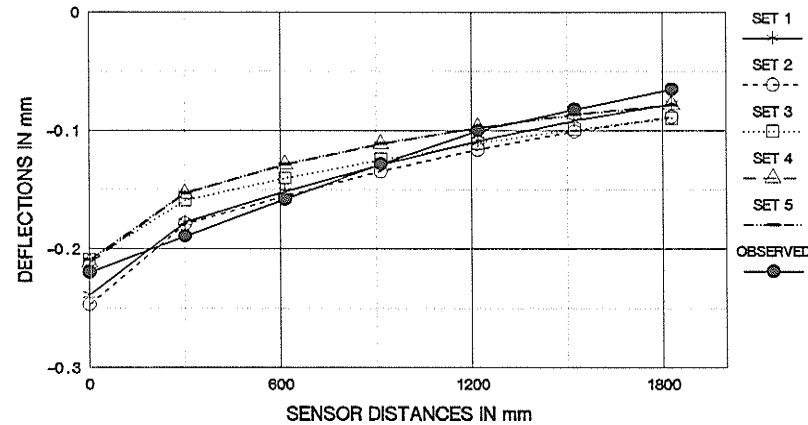
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION

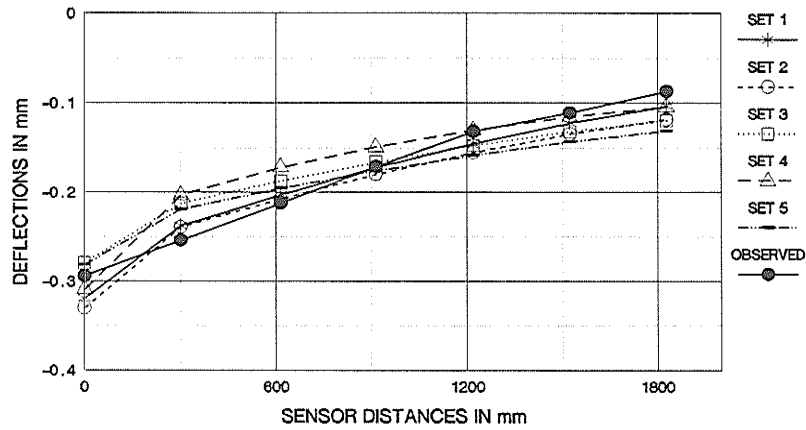


OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

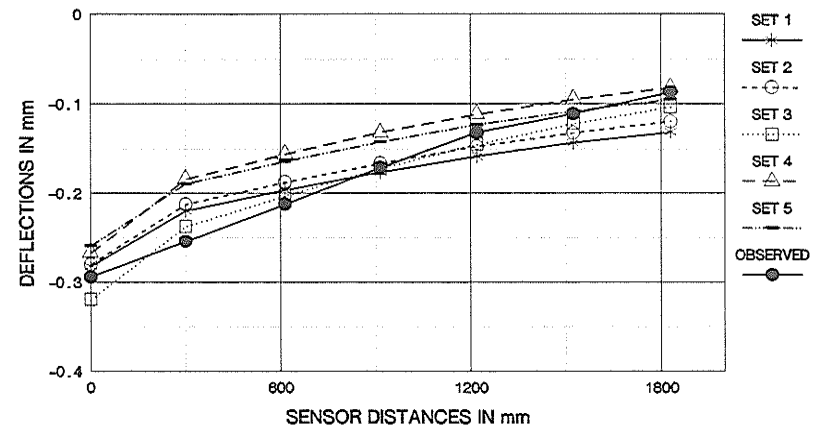


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**  
 THUNDER BAY: RWY 12-30: STA . 5 + 500 R LOAD: 997 kPa .  
 CALCULATED AND OBSERVED DEFLECTION BASINS

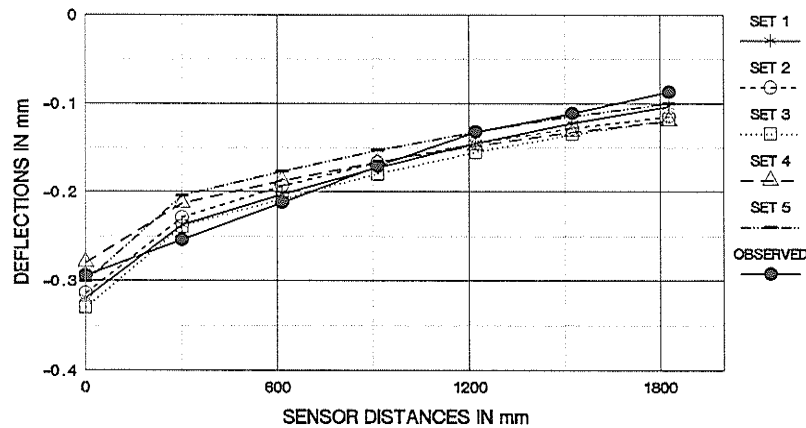
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

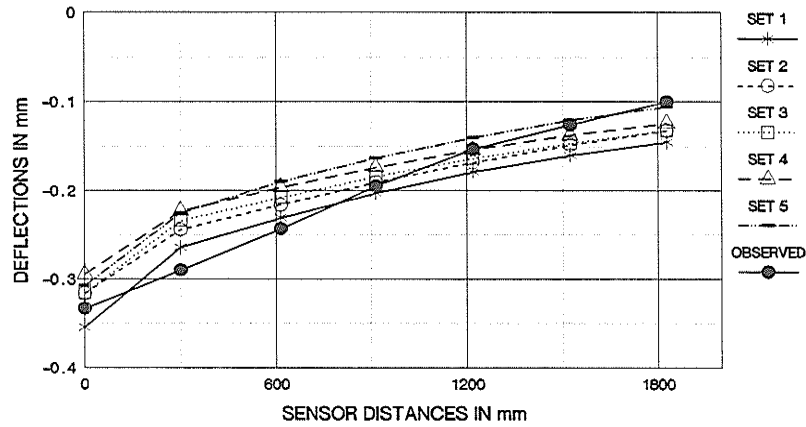


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

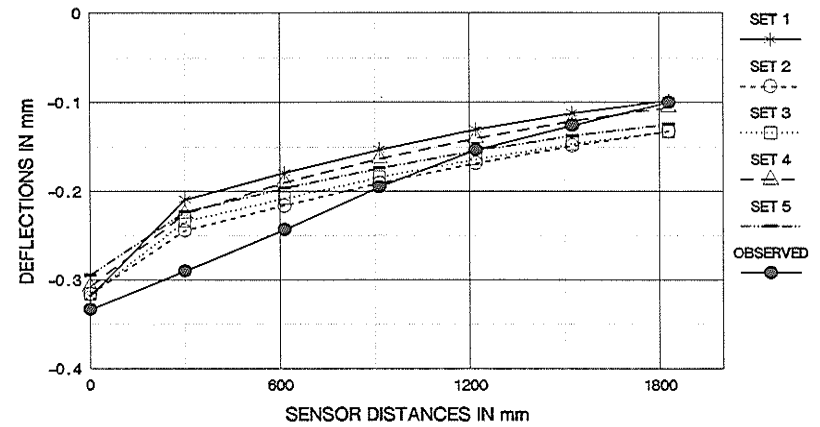
THUNDER BAY: RWY 12-30: STA. 5 + 500 R LOAD: 1333 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

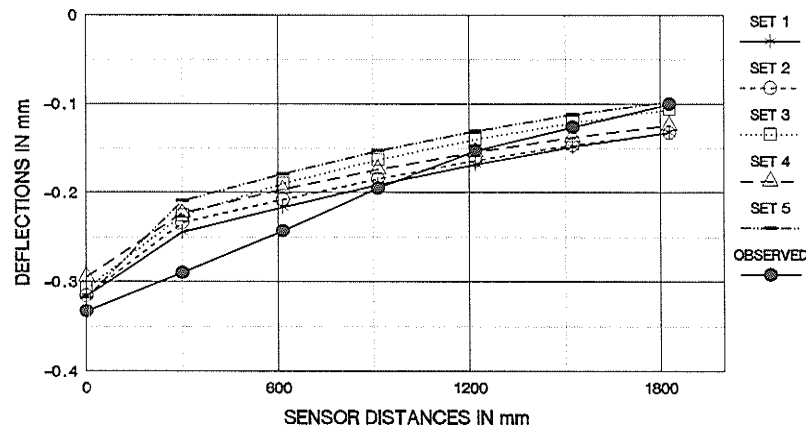
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION

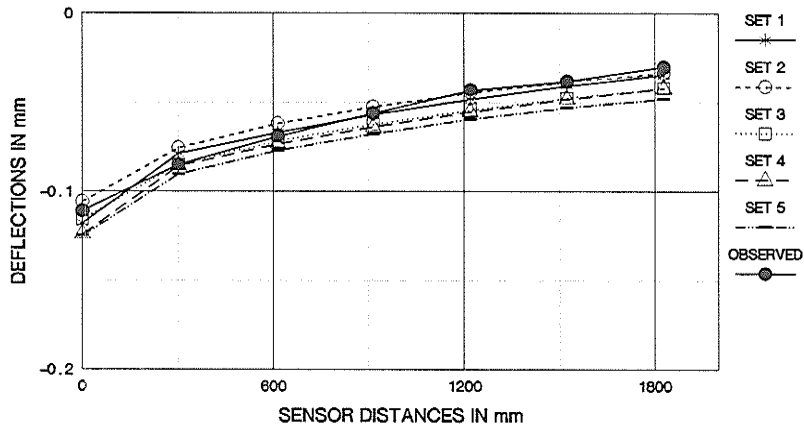


OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

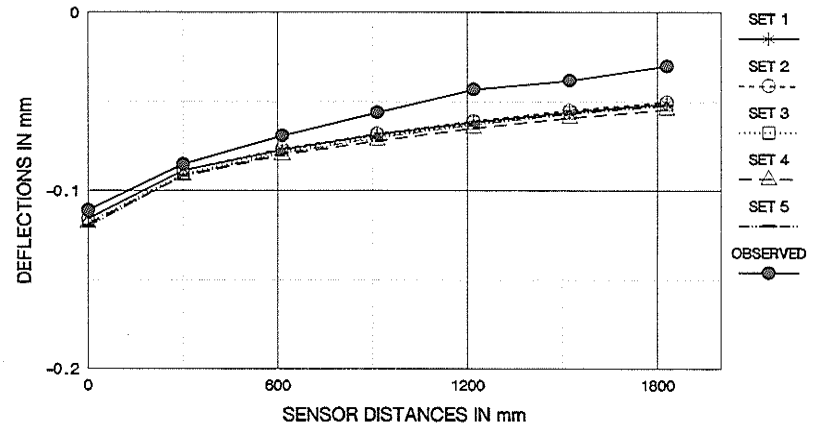


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**  
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 CALCULATED AND OBSERVED DEFLECTION BASINS

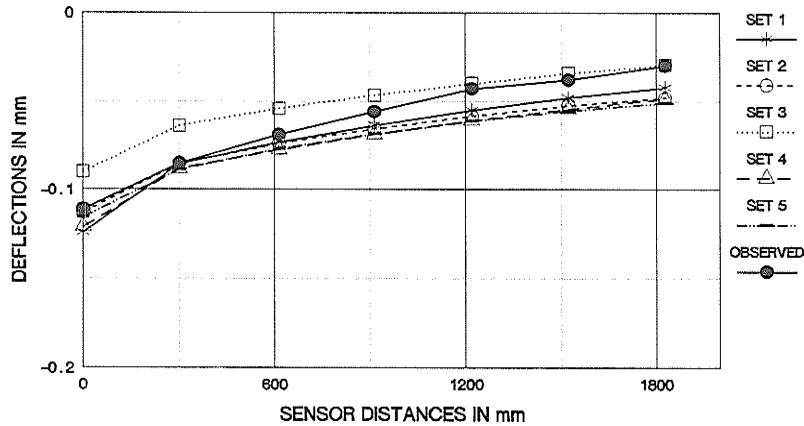
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

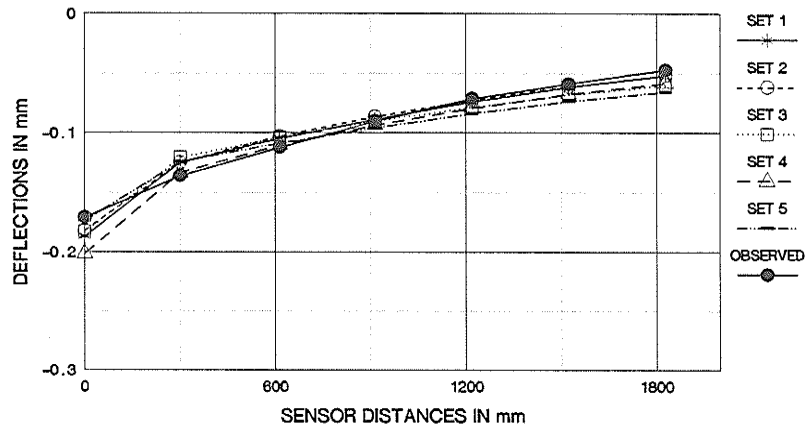


### ANSYS FEM ANALYSIS : ISOTROPIC MODEL

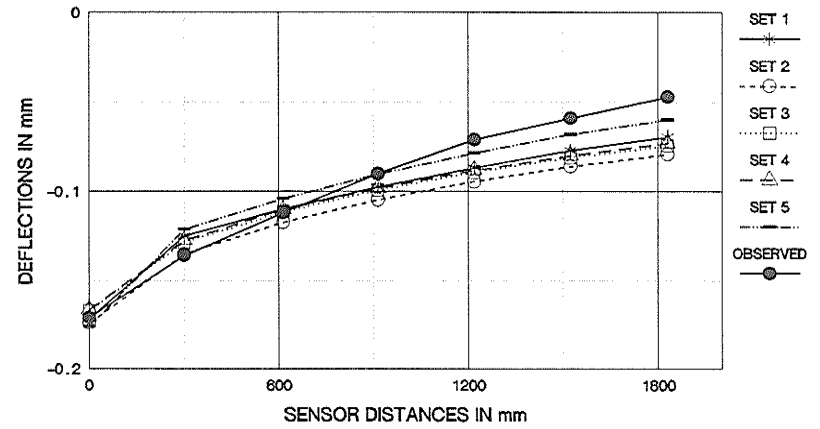
THUNDER BAY: RWY 12-30: STA. 5 + 650 R LOAD: 688 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

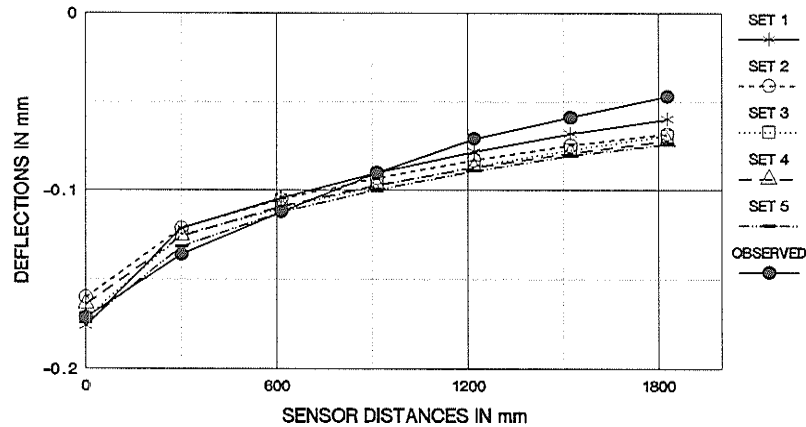
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

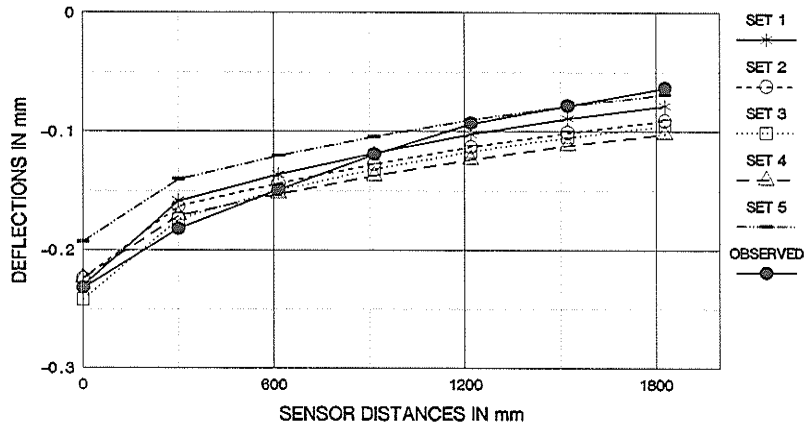


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

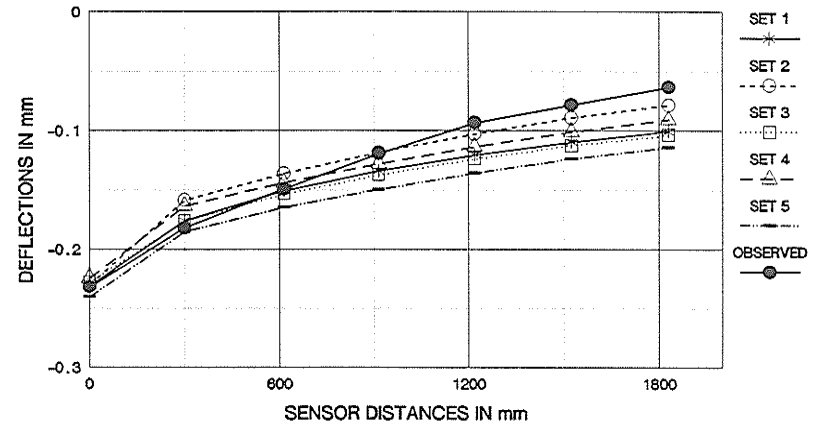
THUNDER BAY: RWY 12-30: STA . 5 + 650 R LOAD: 976 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

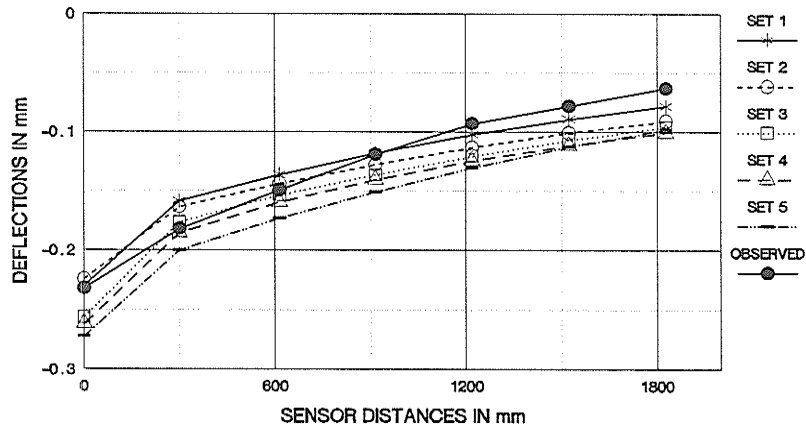
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



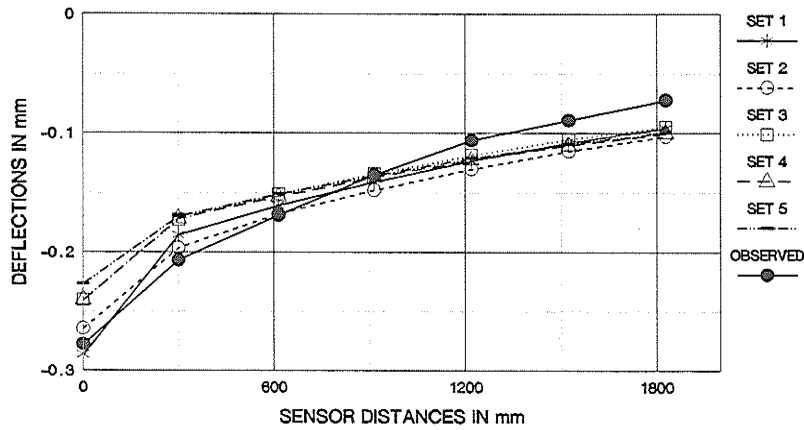
**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

THUNDER BAY: RWY 12-30: STA. 5 + 650 R LOAD: 1276 kPa.

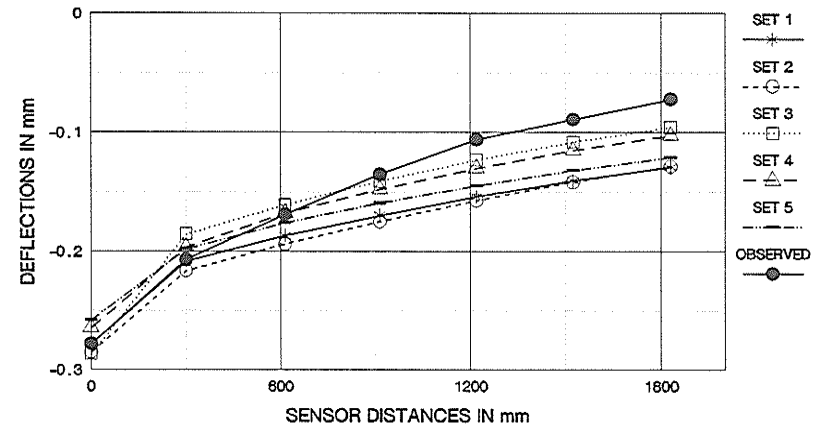
CALCULATED AND OBSERVED DEFLECTION BASINS



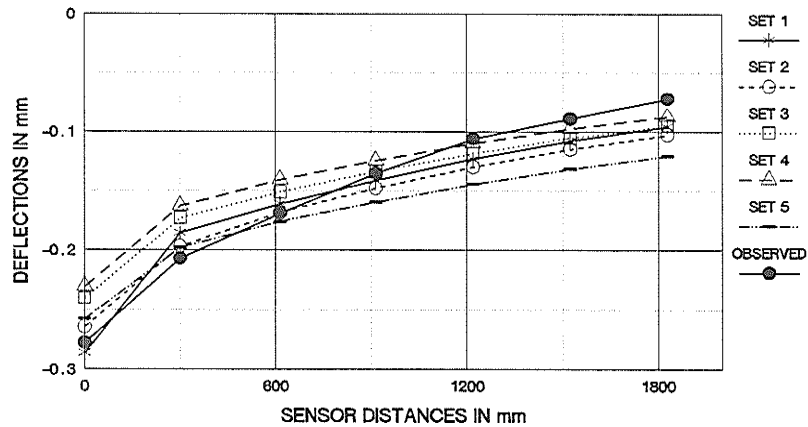
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



### ANSYS FEM ANALYSIS : ISOTROPIC MODEL

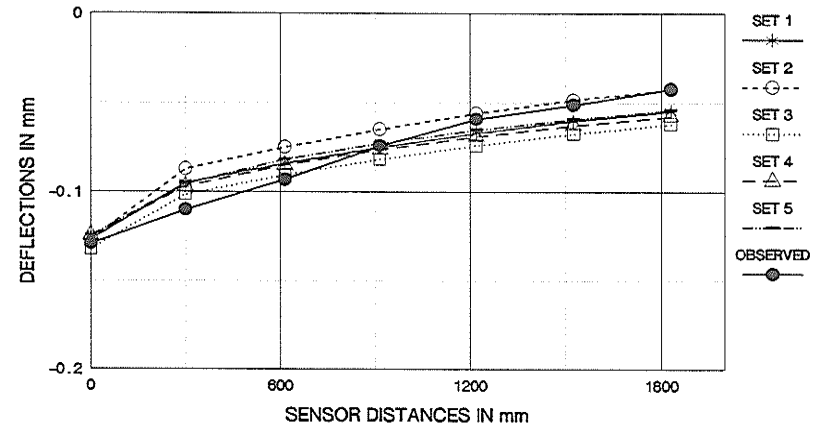
THUNDER BAY: RWY 12-30: STA. 5 + 650 R LOAD: 1391 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

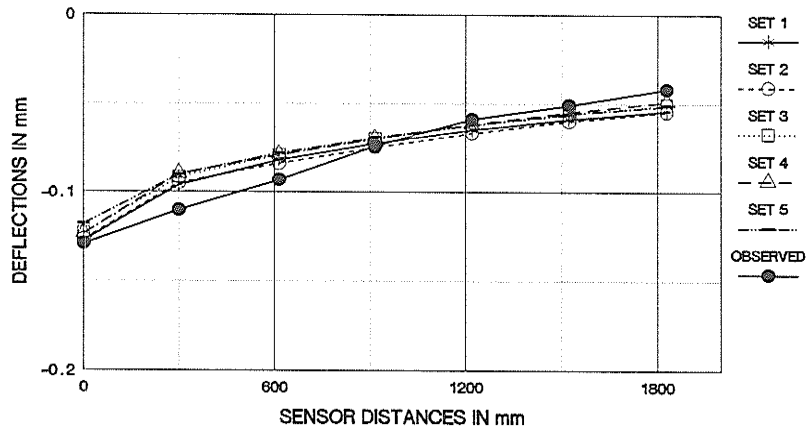
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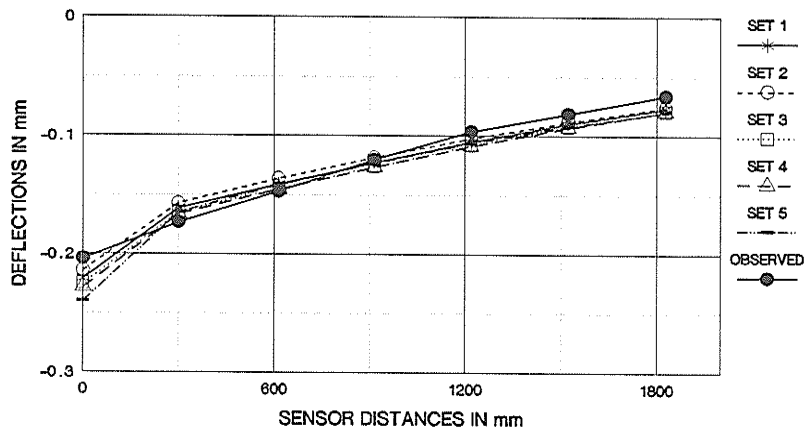


OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

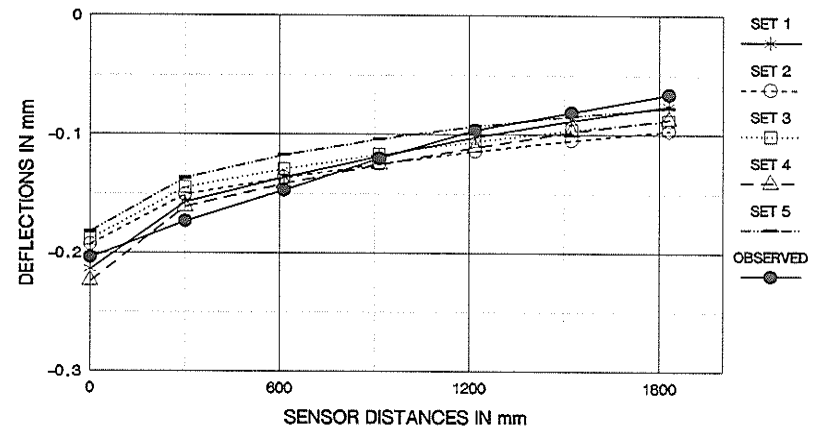


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**  
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CALCULATED AND OBSERVED DEFLECTION BASINS

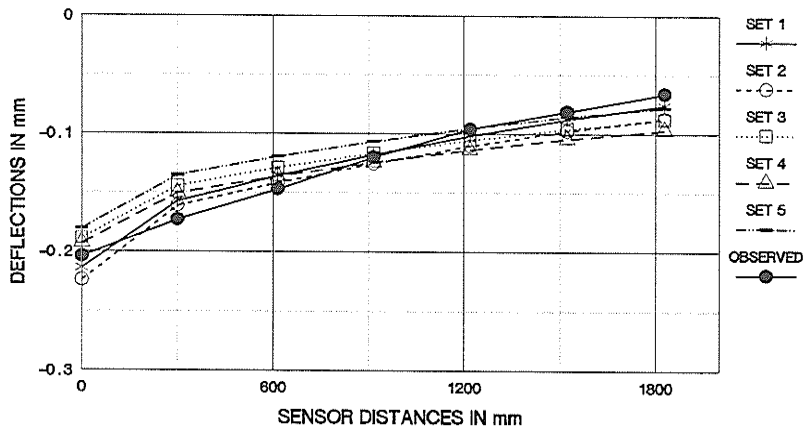
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

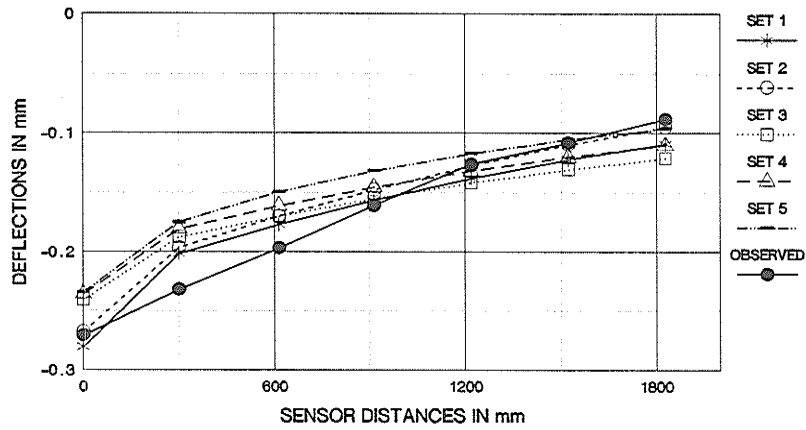


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

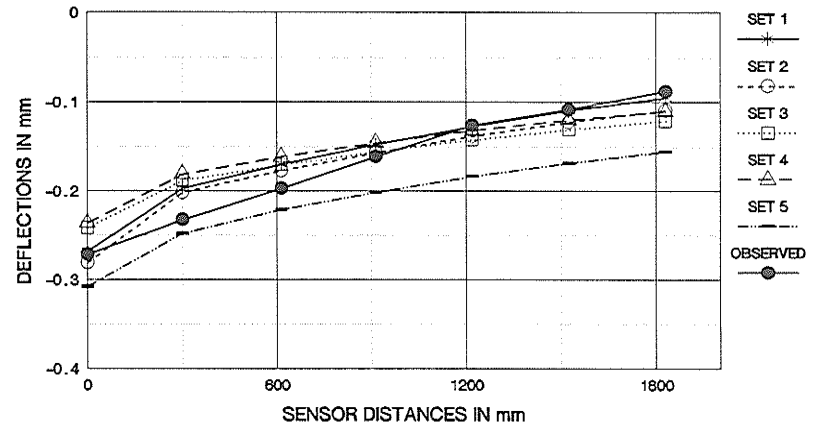
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CALCULATED AND OBSERVED DEFLECTION BASINS

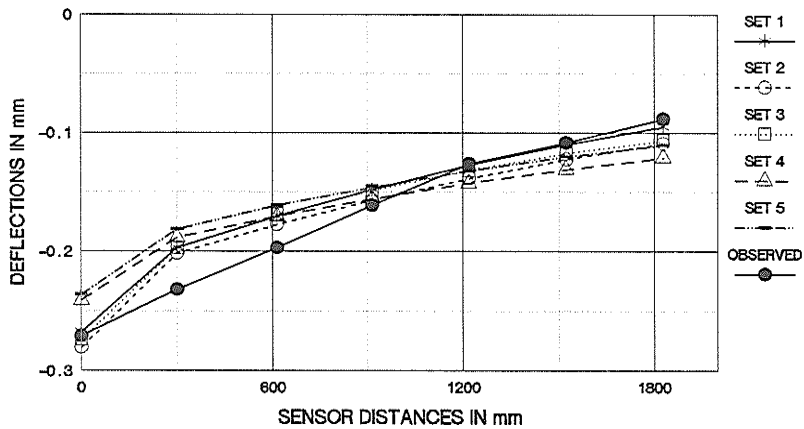
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

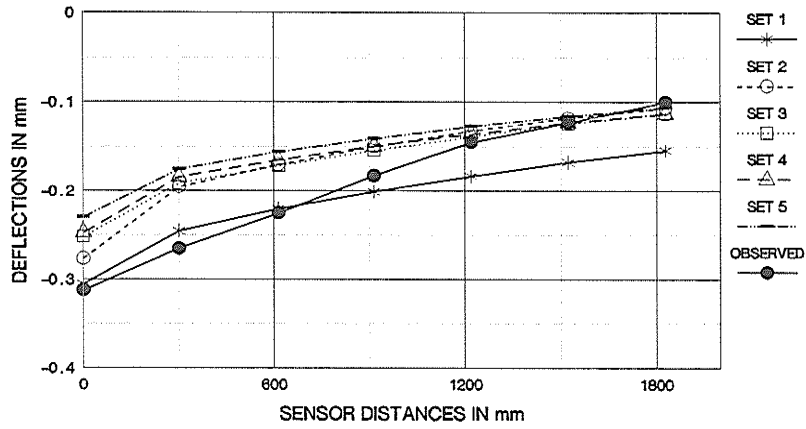


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

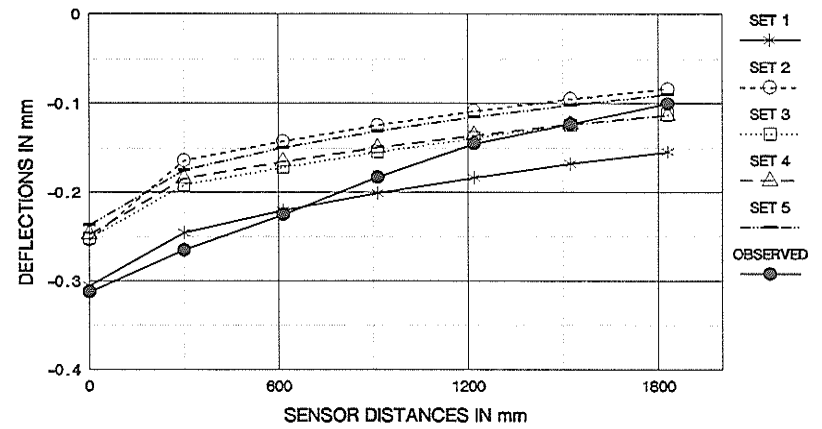
THUNDER BAY: RWY 12-30: STA . 6 + 100 R LOAD: 1233 kPa .

CALCULATED AND OBSERVED DEFLECTION BASINS

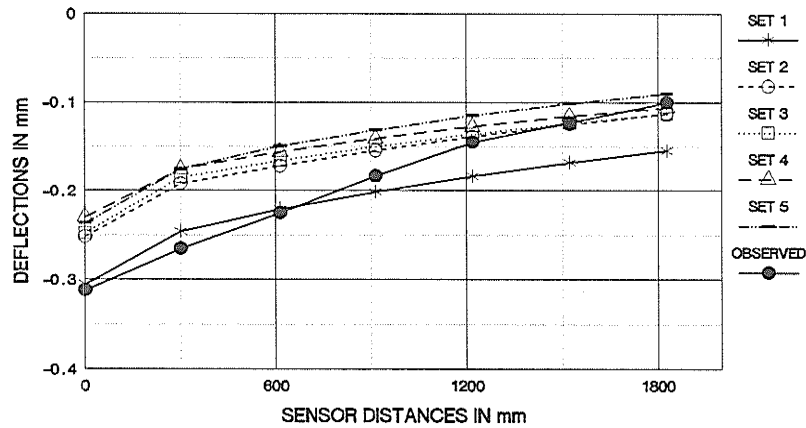
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

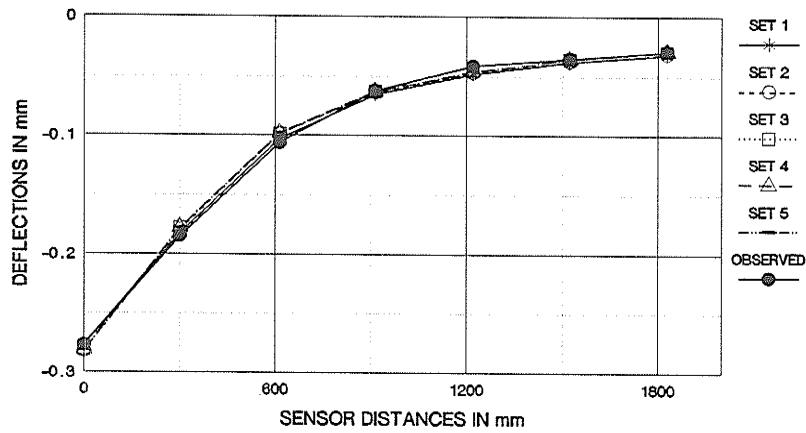


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

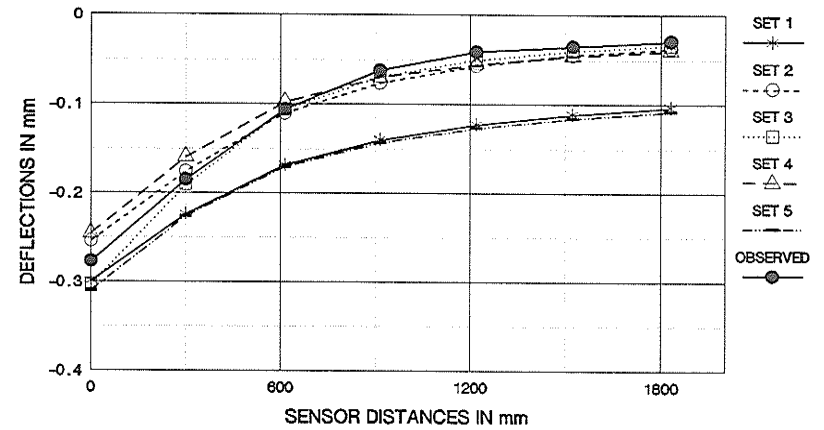
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CALCULATED AND OBSERVED DEFLECTION BASINS

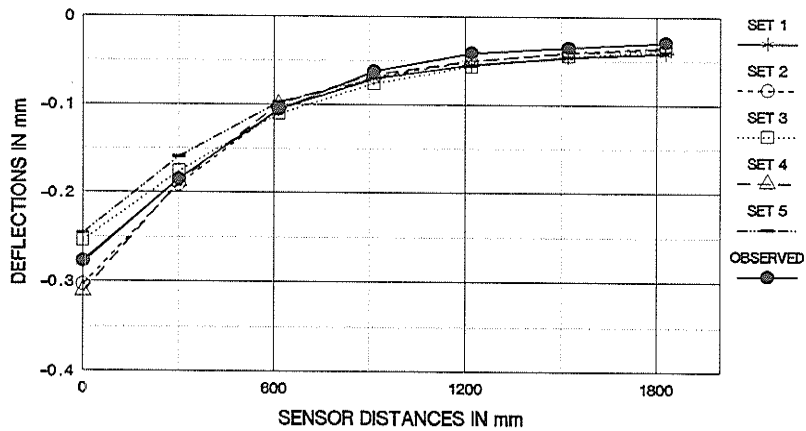
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OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

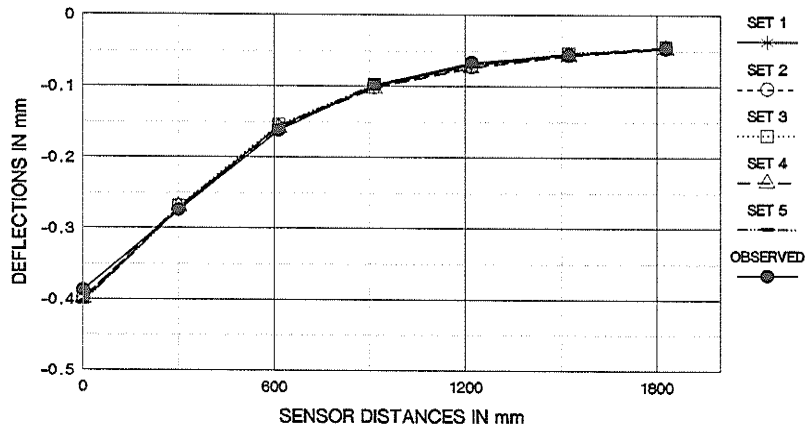


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

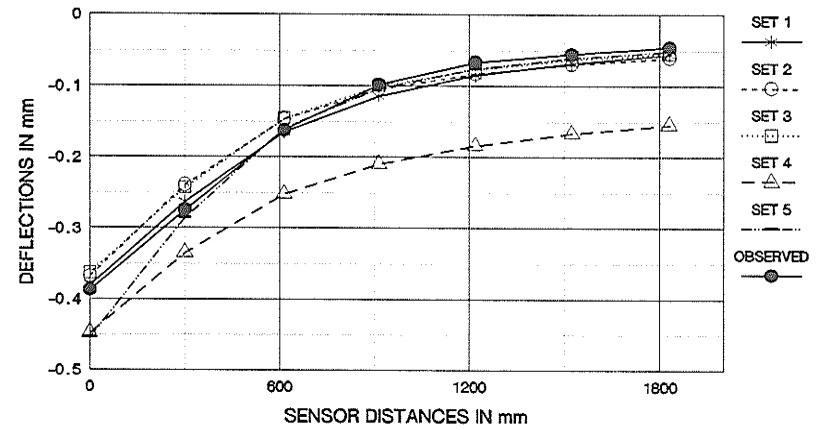
THUNDER BAY: TAXI A: STA. 10 + 740 L LOAD: 588 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

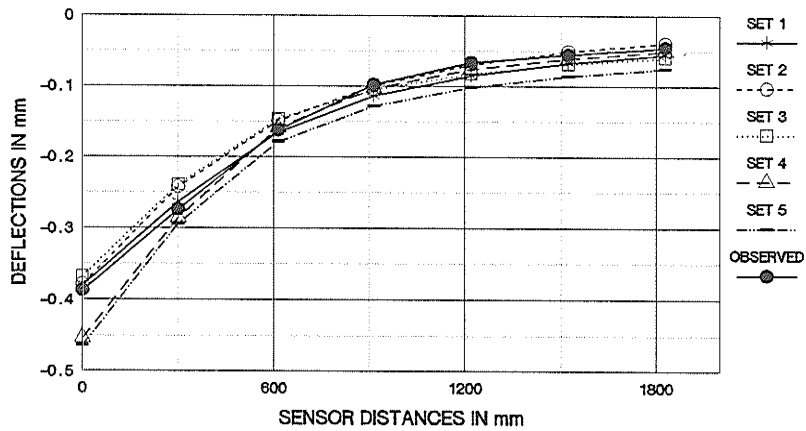
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



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OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

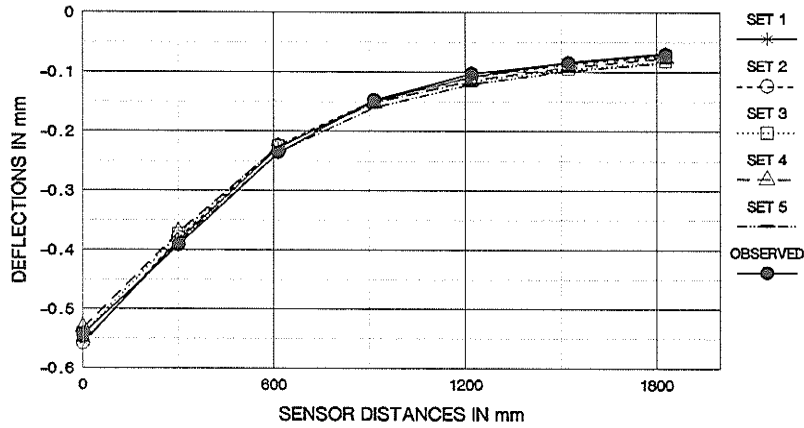


**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

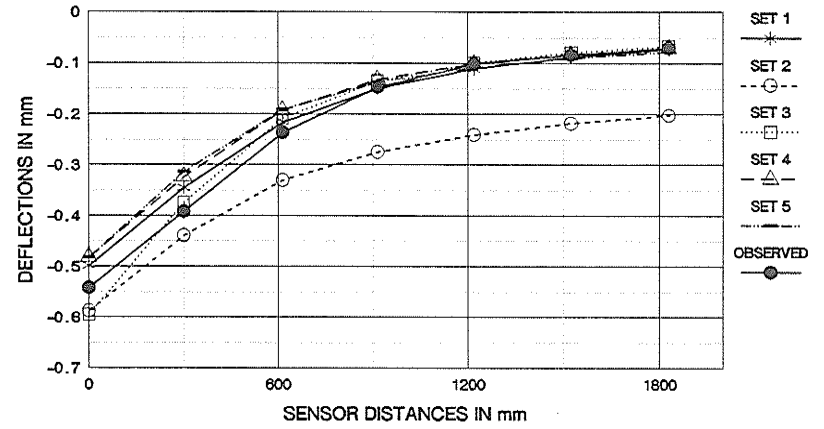
THUNDER BAY: TAXI A: STA. 10 + 740 L LOAD: 880 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

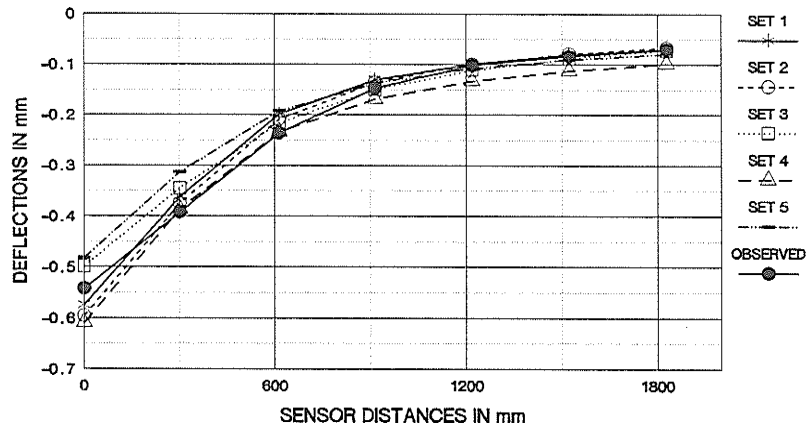
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



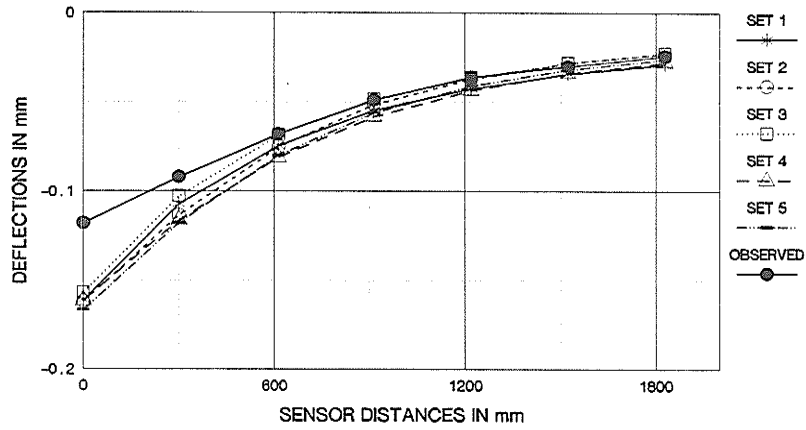
**ANSYS FEM ANALYSIS : ISOTROPIC MODEL**

THUNDER BAY: TAXI A: STA. 10 + 740 L LOAD: 1154 kPa .

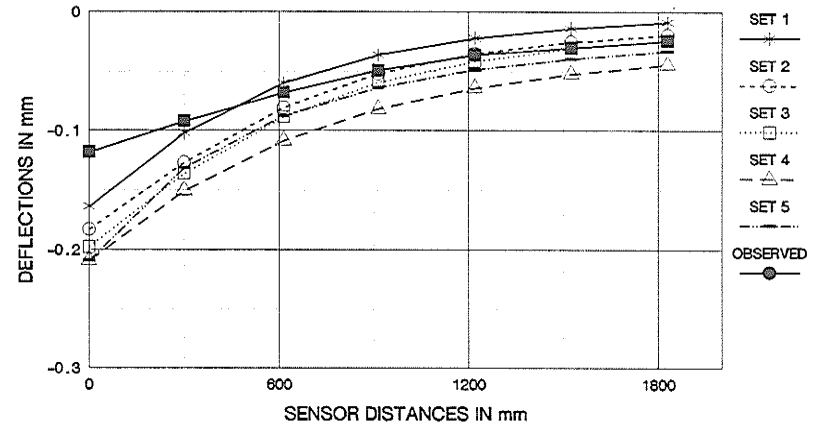
CALCULATED AND OBSERVED DEFLECTION BASINS



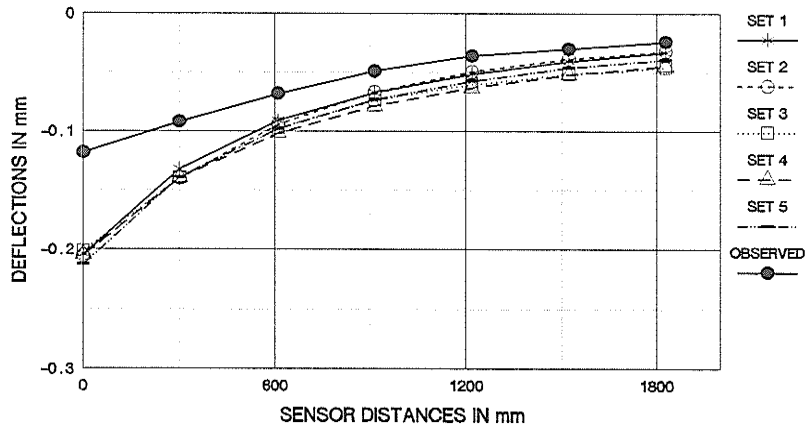
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

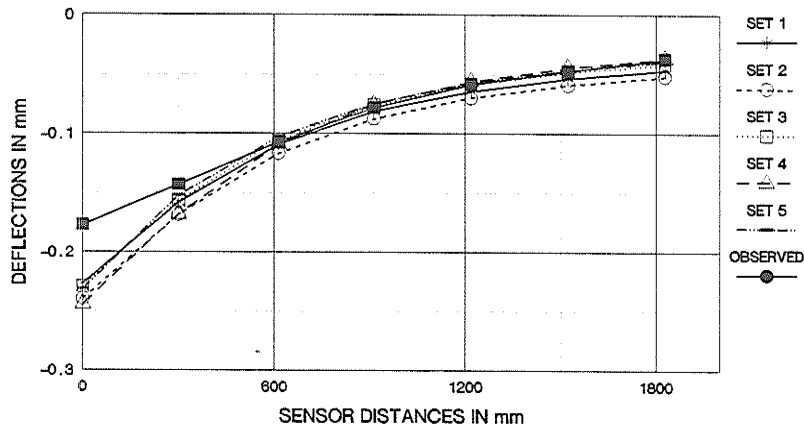


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

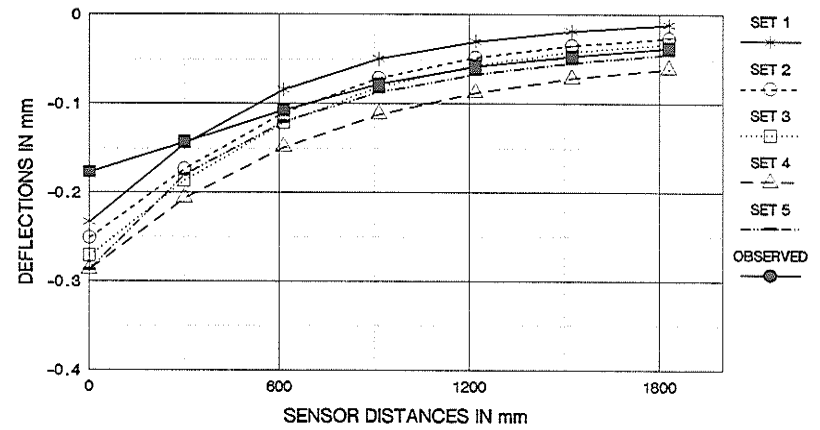
THUNDER BAY: RWY . 12-30:STA . 5 + 100: LOAD 752 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

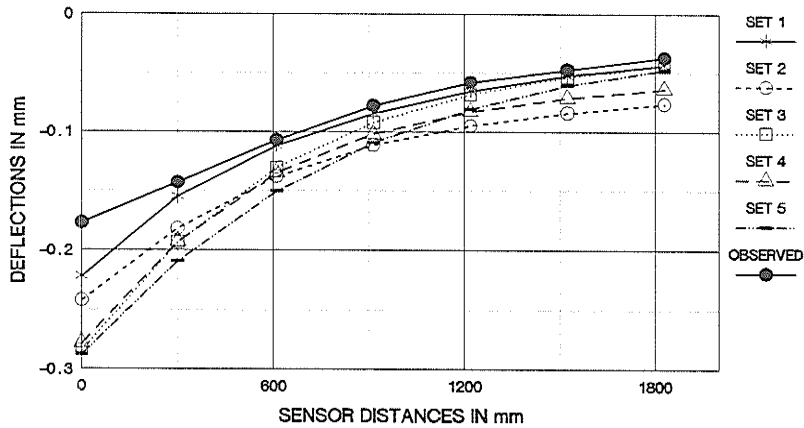
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

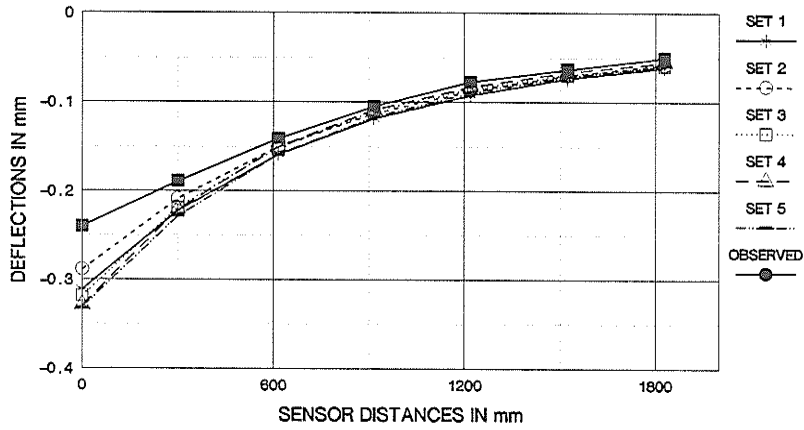


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

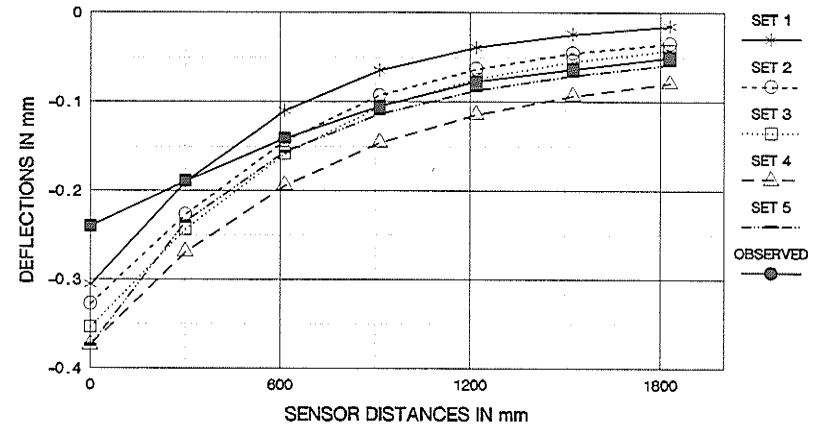
THUNDER BAY: RWY . 12-30:STA. 5 + 100: LOAD 1040 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

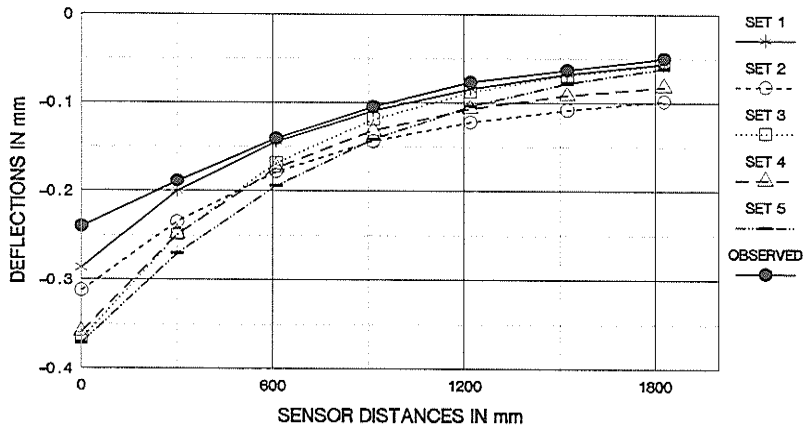
OPTIMIZING CRITERION: 'AREA' OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

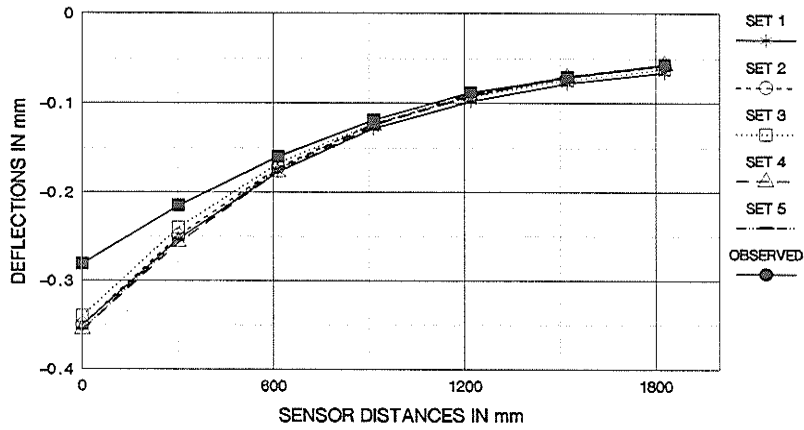


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

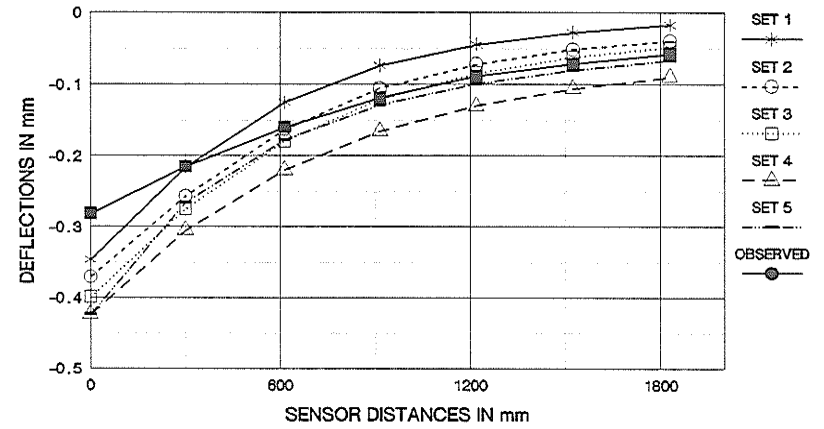
THUNDER BAY: RWY . 12-30:STA. 5 + 100: LOAD 1342 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

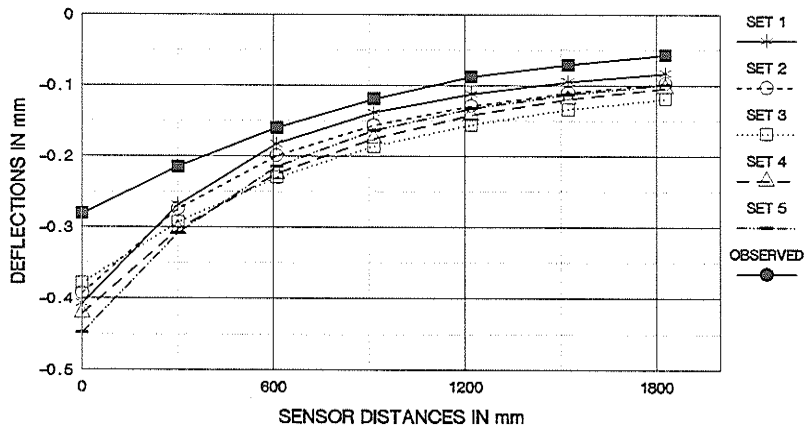
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

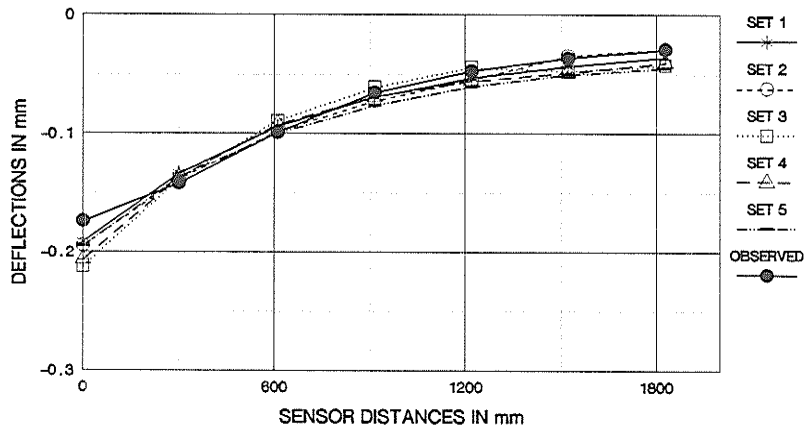


**ANSYS FEM ANALYSIS: X-ANISOTROPIC MODEL**

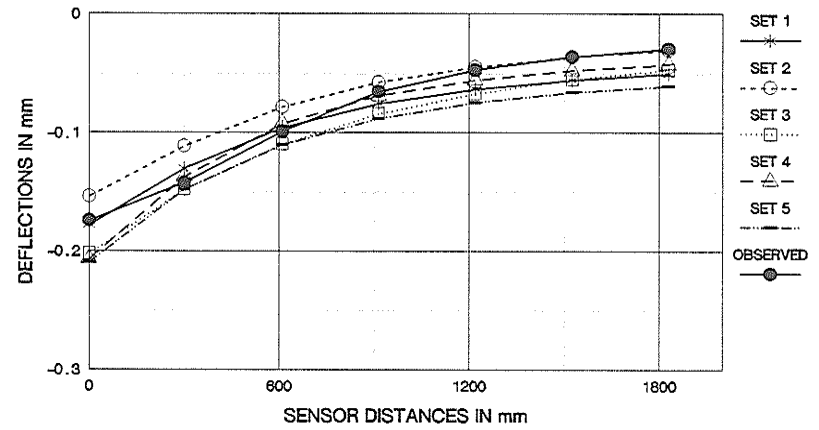
THUNDER BAY: RWY. 12-30: STA. 5 + 100: LOAD 1525 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

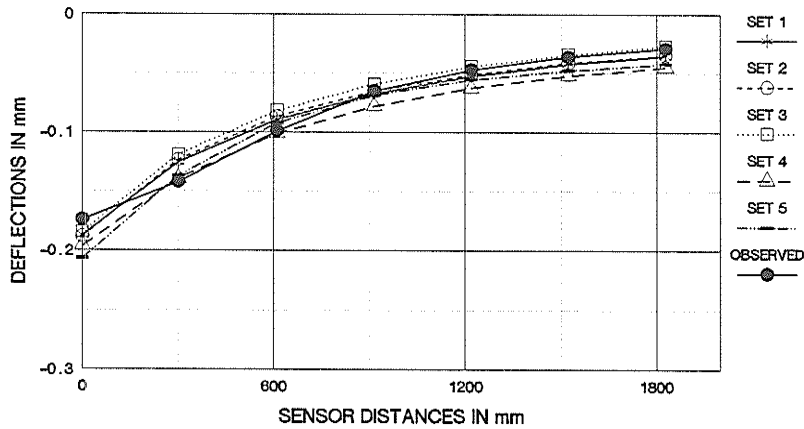
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

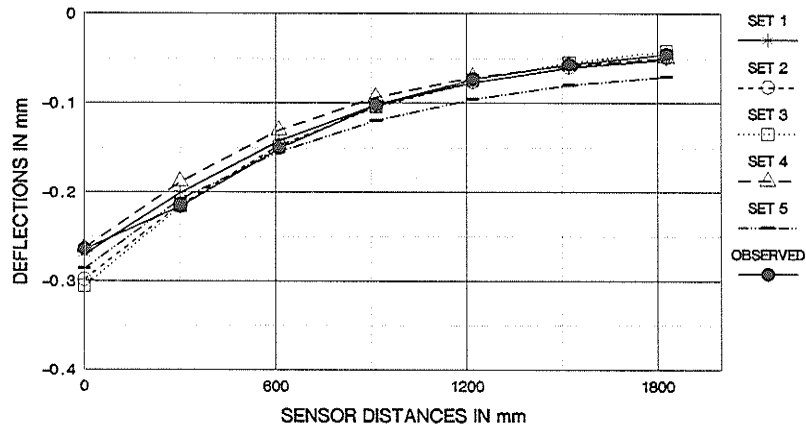


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

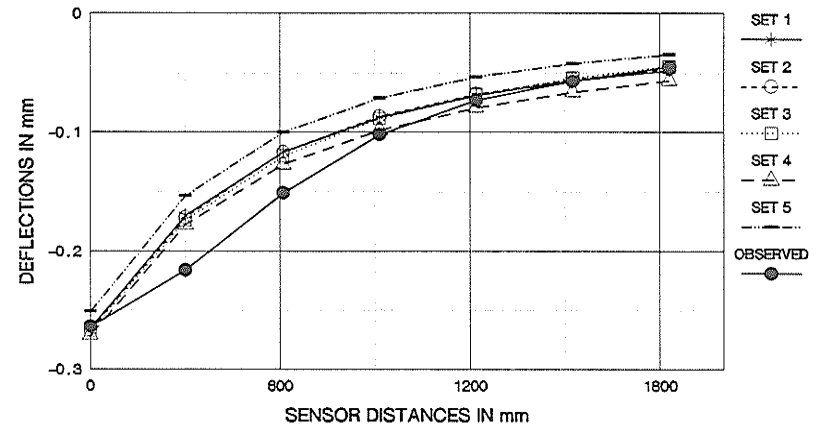
THUNDER BAY: RWY . 12-30:STA. 5 + 200: LOAD 699 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

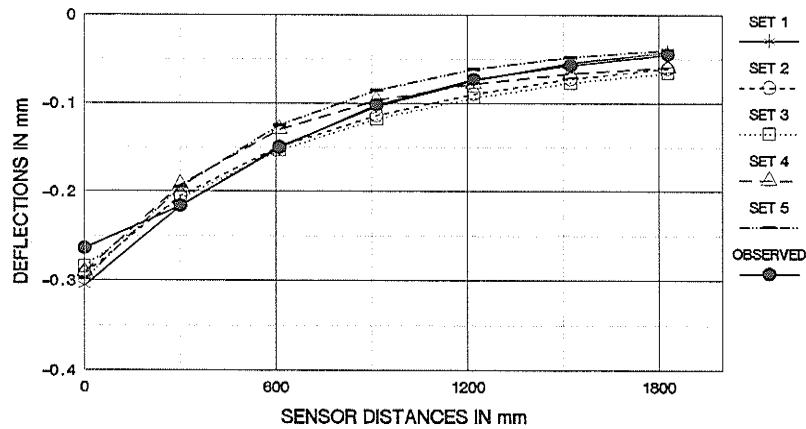
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

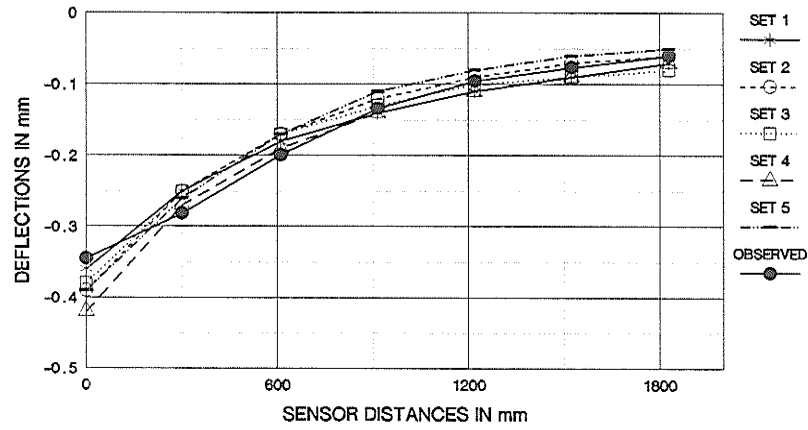


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

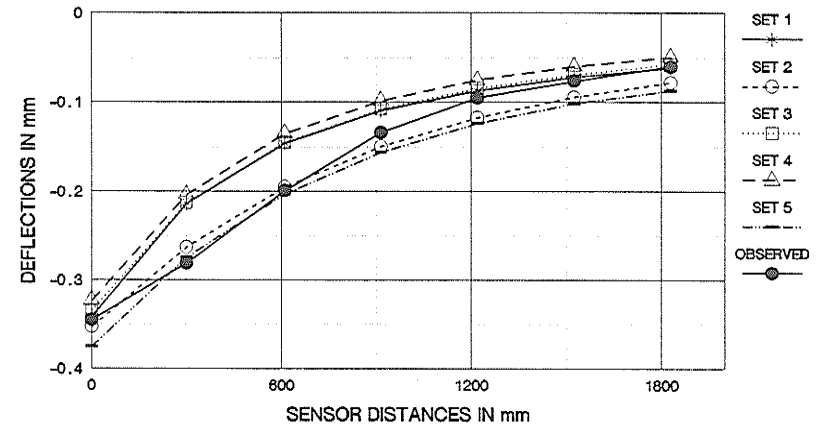
THUNDER BAY: RWY. 12-30: STA. 5 + 200: LOAD 982 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

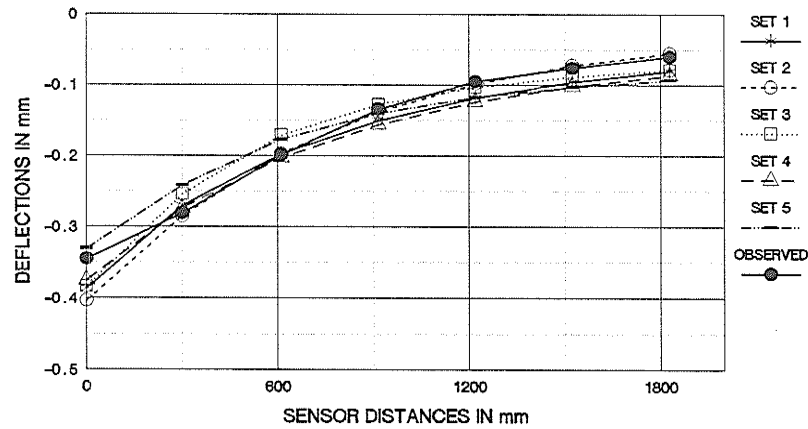
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

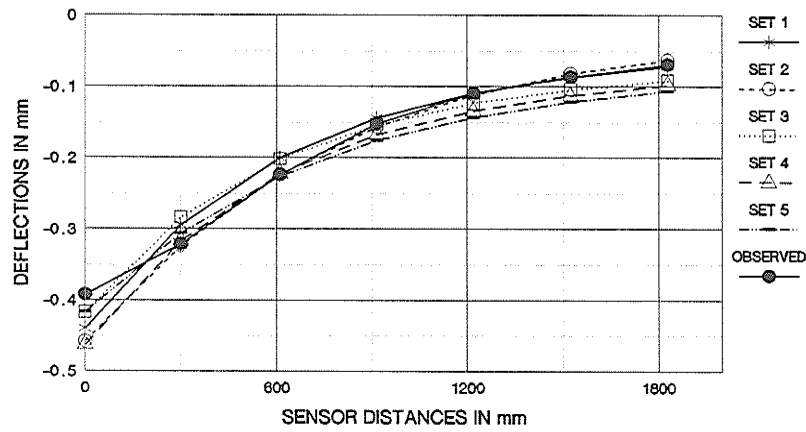


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

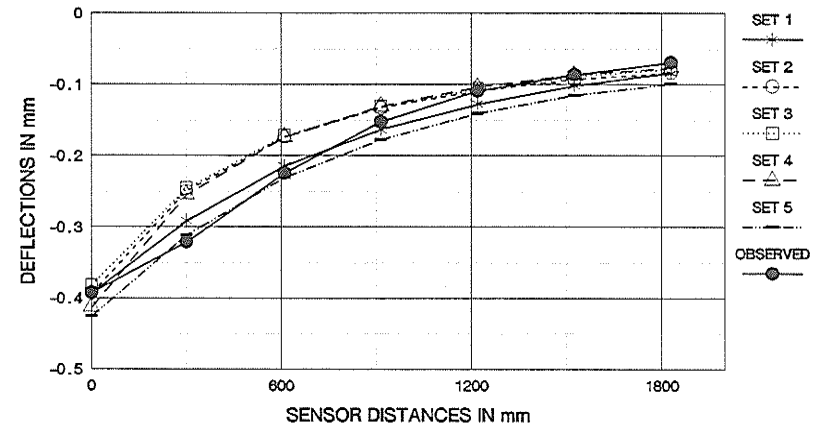
THUNDER BAY: RWY . 12-30:STA . 5 + 200: LOAD 1297 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

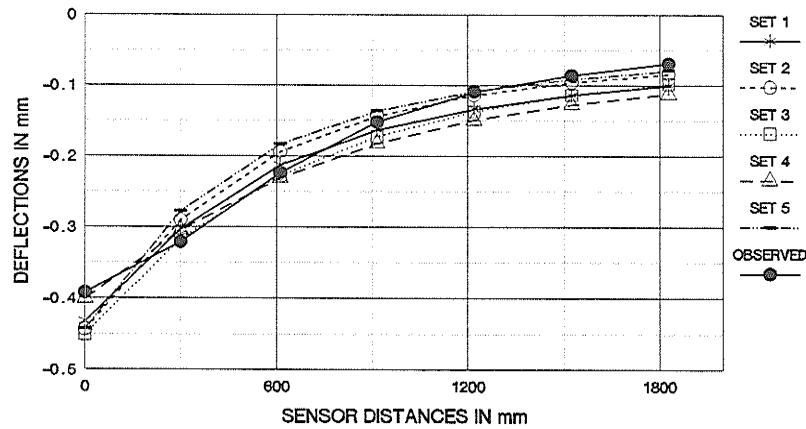
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



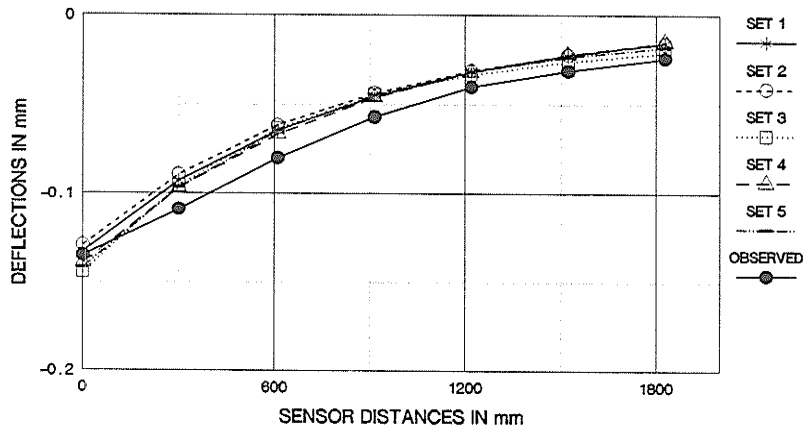
**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

THUNDER BAY: RWY . 12-30:STA. 5 + 200: LOAD 1472 kPa

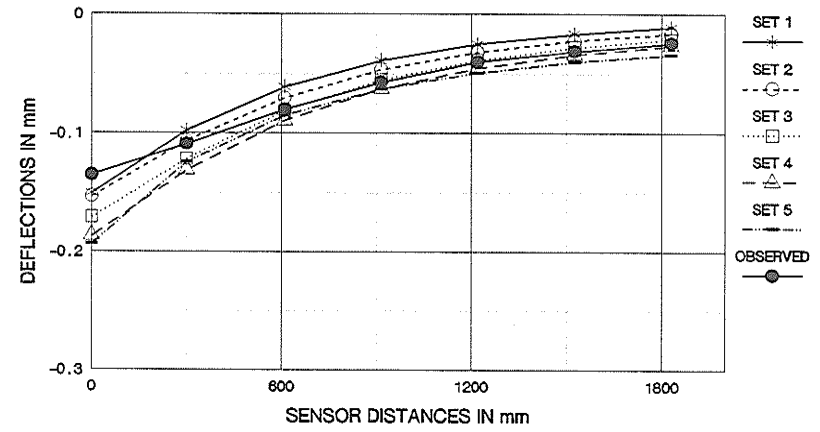
CALCULATED AND OBSERVED DEFLECTION BASINS



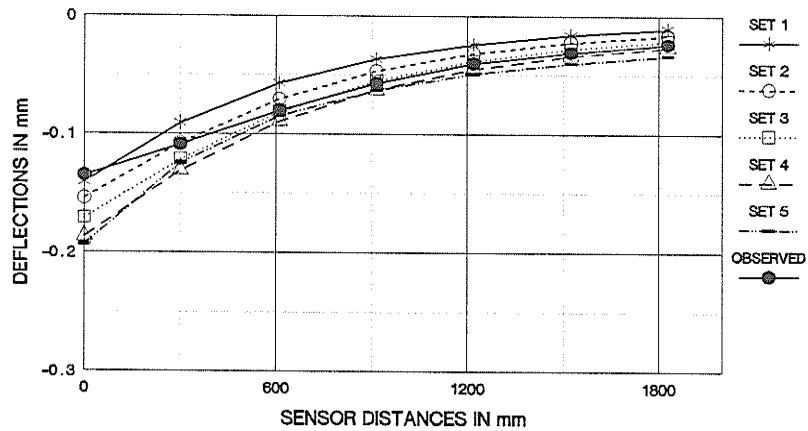
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

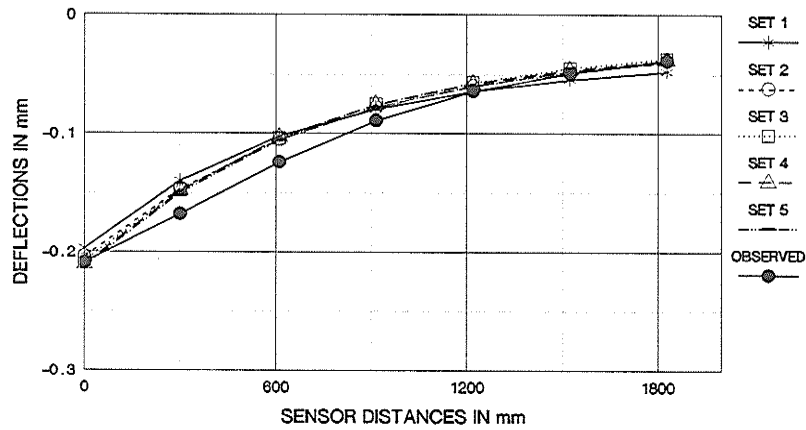


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

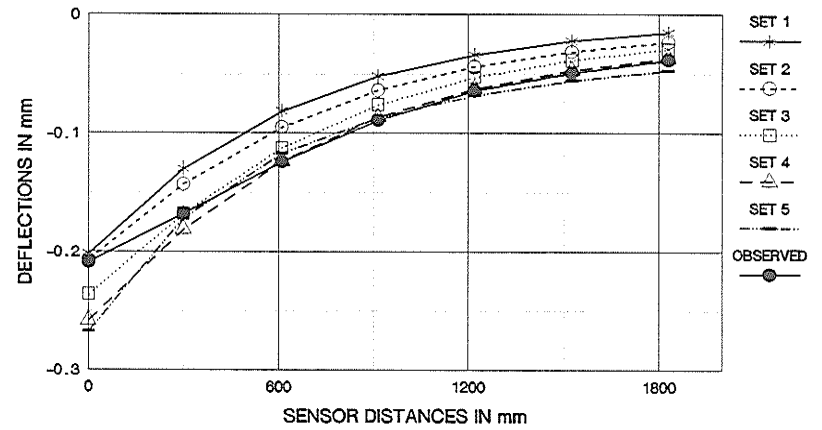
THUNDER BAY: RWY 12-30: STA. 5 + 300 R LOAD: 730 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

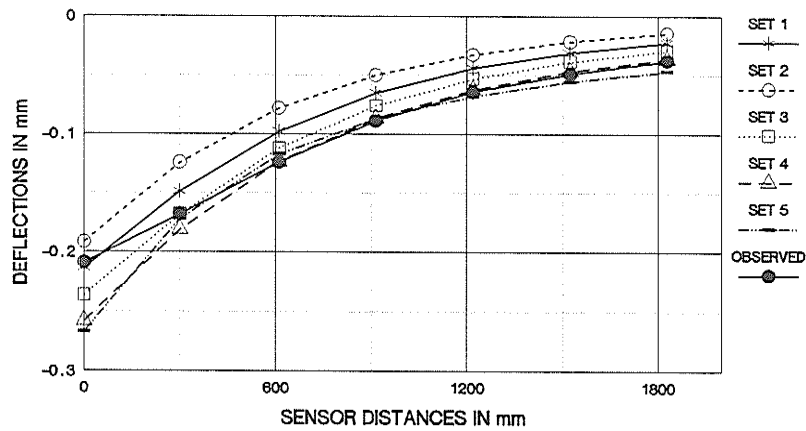
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

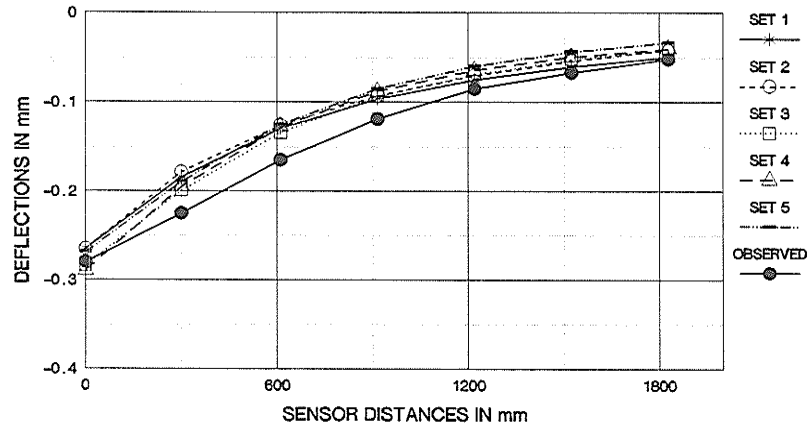


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

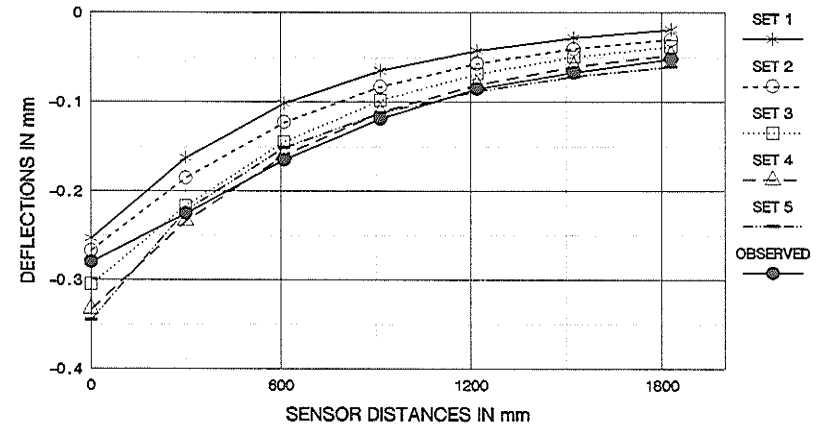
THUNDER BAY: RWY 12-30: STA. 5 + 300 R LOAD: 1001 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

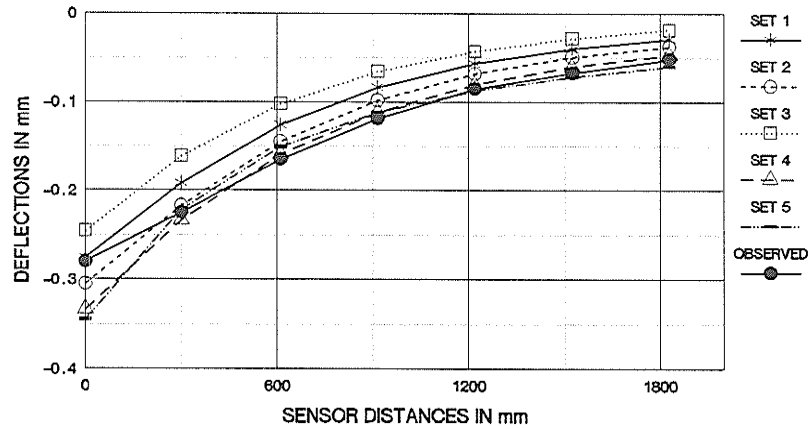
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

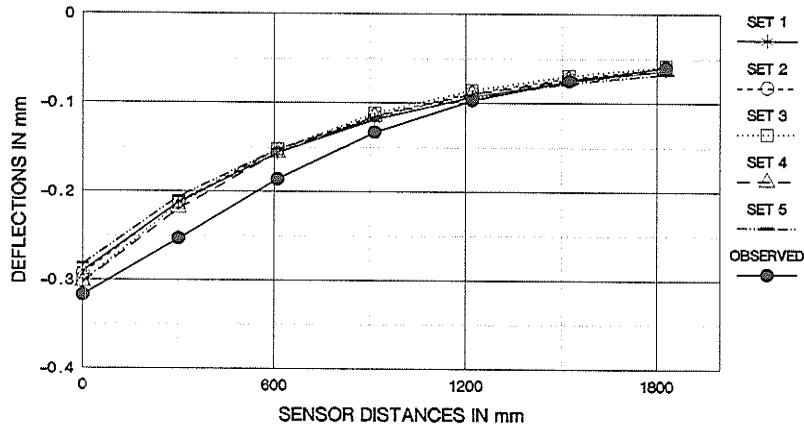


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

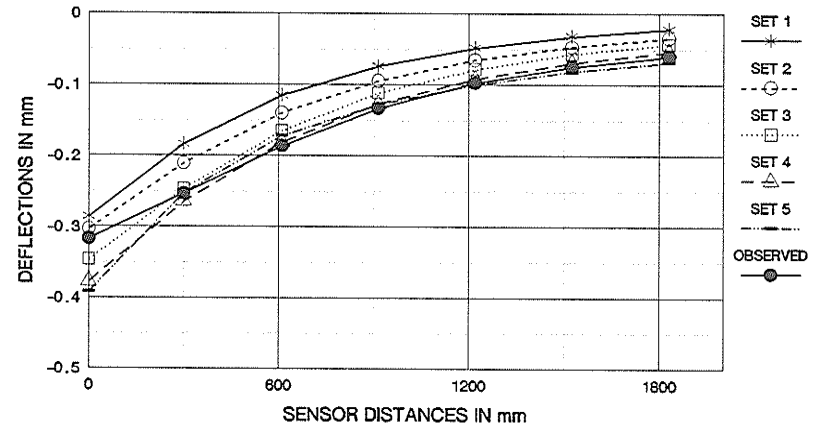
THUNDER BAY: RWY 12-30: STA . 5 + 300 R LOAD: 1305 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

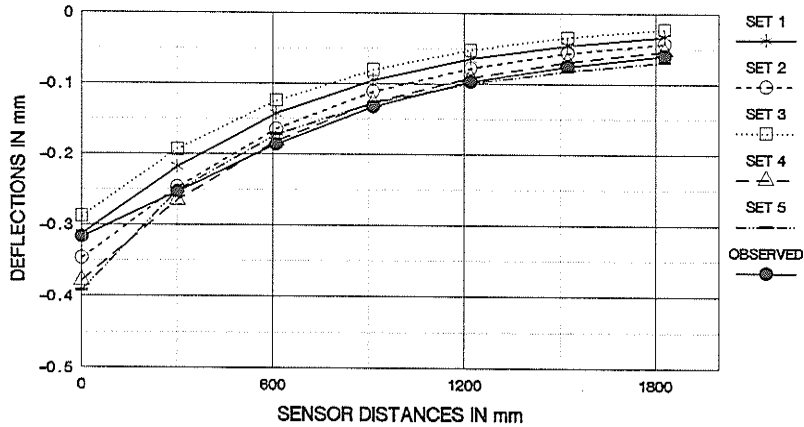
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

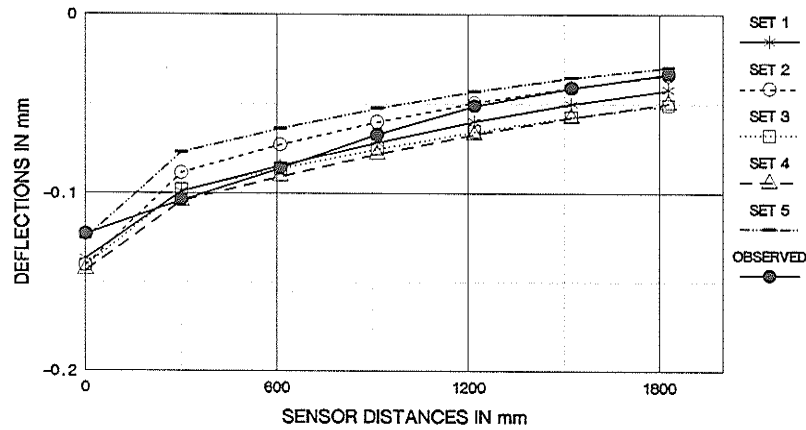


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

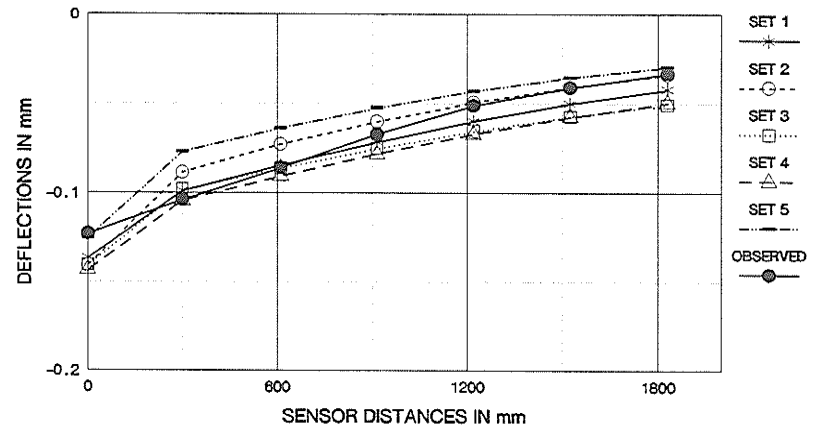
THUNDER BAY: RWY 12-30: STA . 5 + 300 R LOAD: 1479 kPa .

CALCULATED AND OBSERVED DEFLECTION BASINS

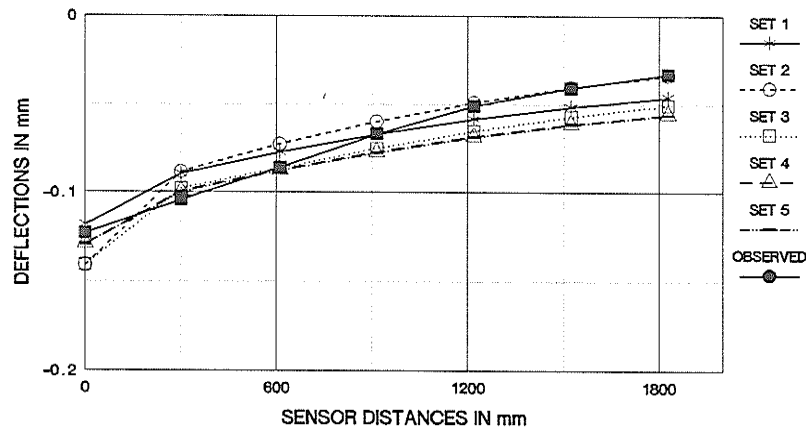
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

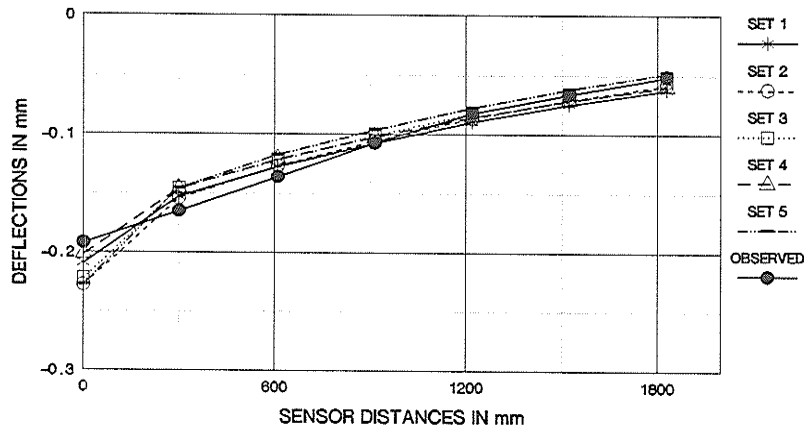


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

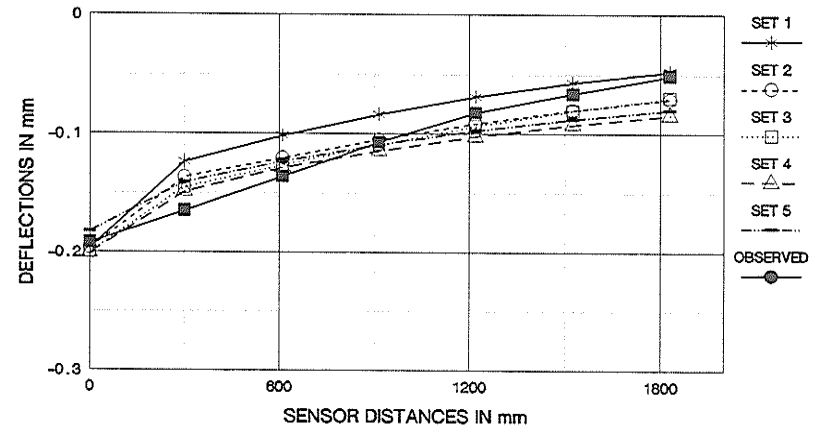
THUNDER BAY: RWY . 12-30: STA . 5 + 400: LOAD 746 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

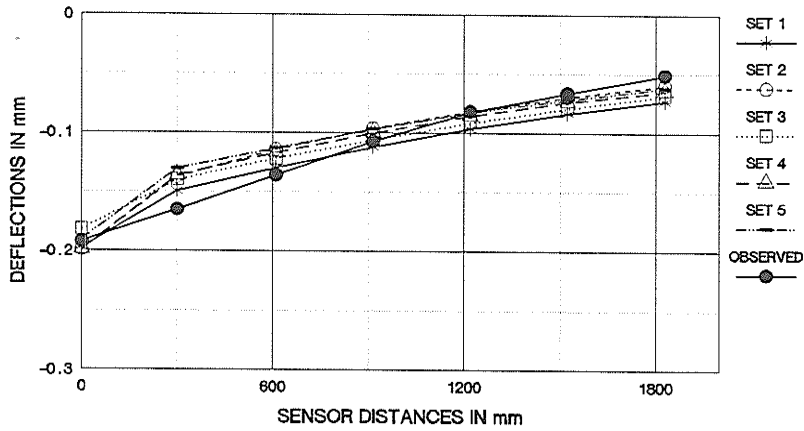
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

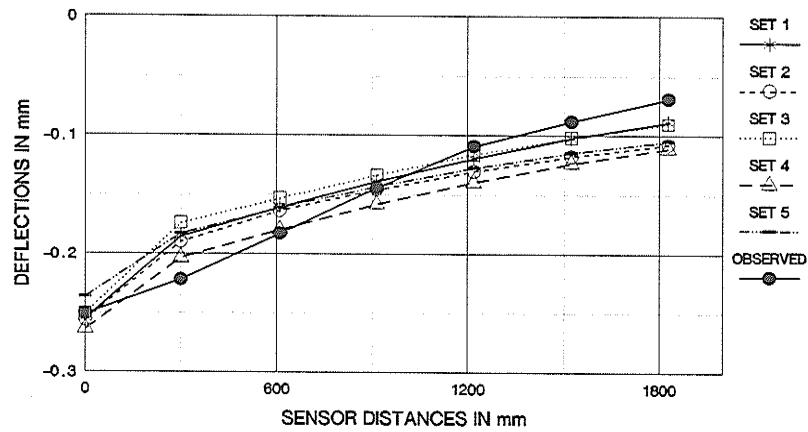


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

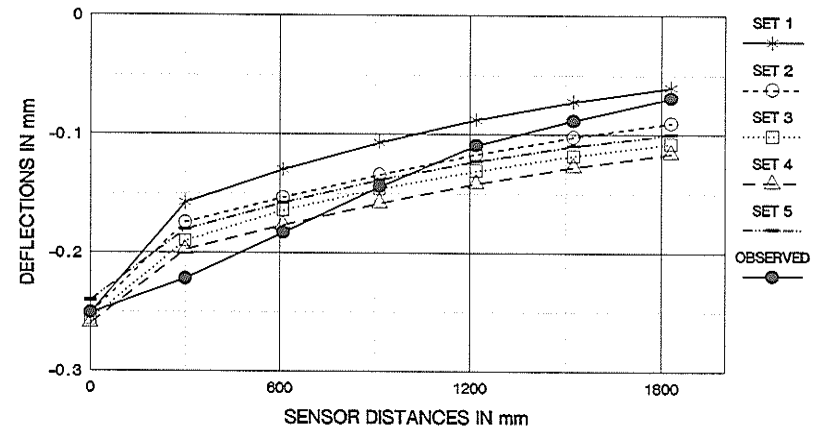
THUNDER BAY: RWY . 12-30:STA. 5 + 400: LOAD 1042 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

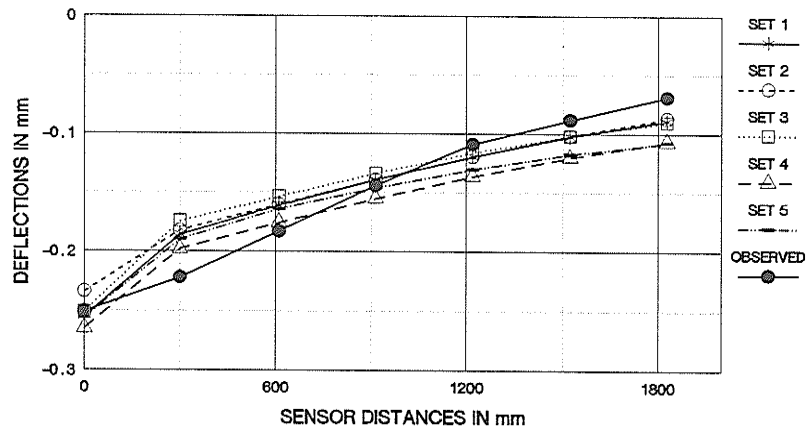
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

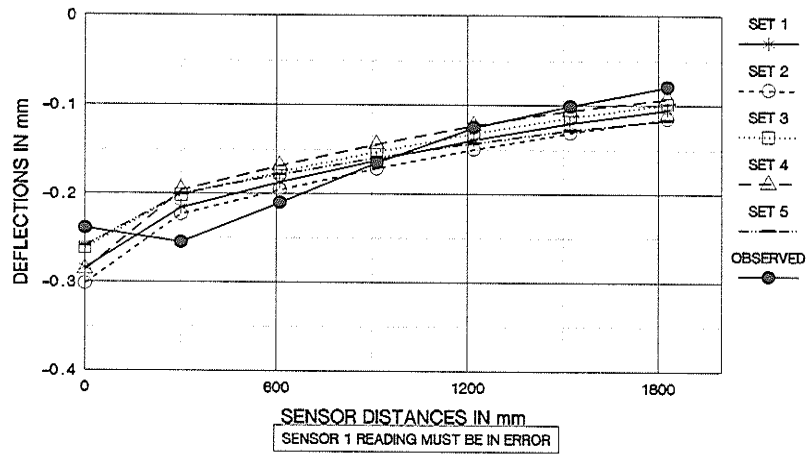


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

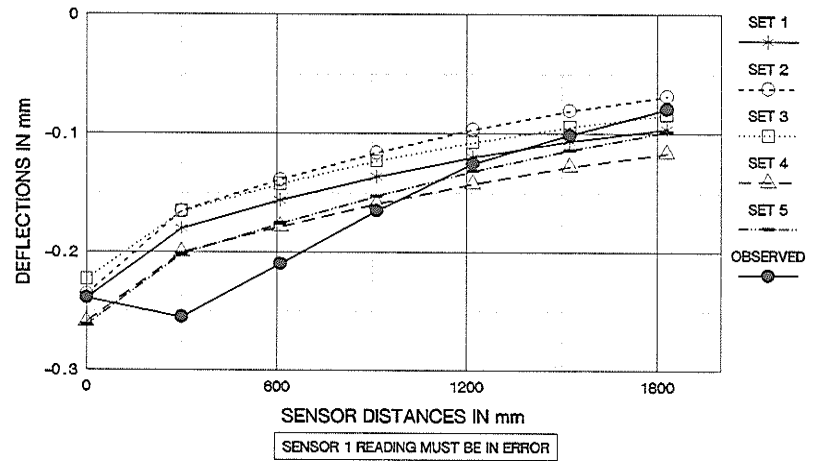
THUNDER BAY: RWY . 12-30:STA . 5 + 400: LOAD 1329 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

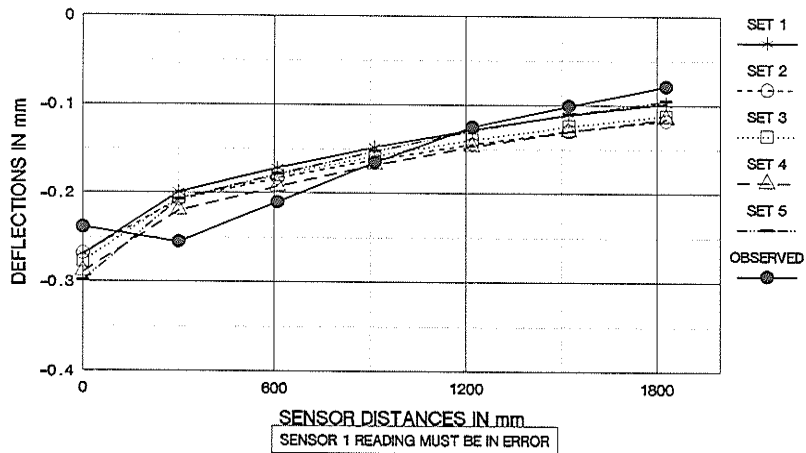
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



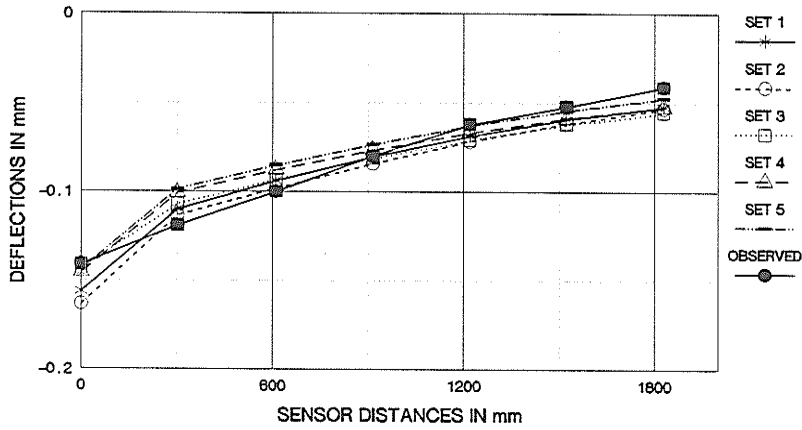
**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

THUNDER BAY: RWY . 12-30:STA . 5 + 400: LOAD 1501 kPa

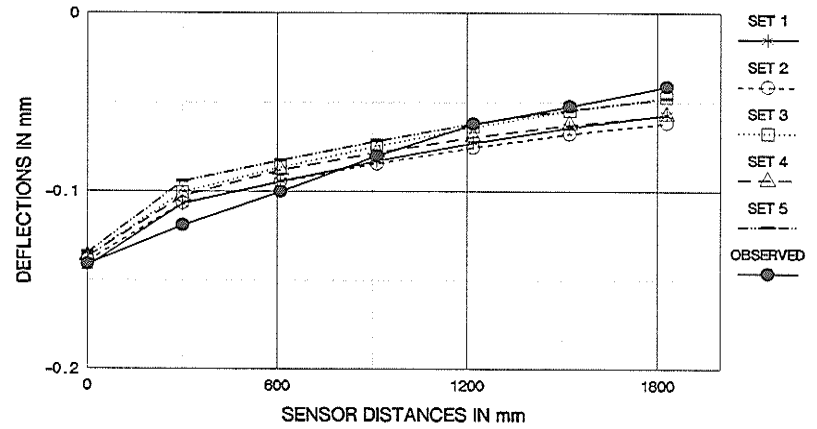
CALCULATED AND OBSERVED DEFLECTION BASINS



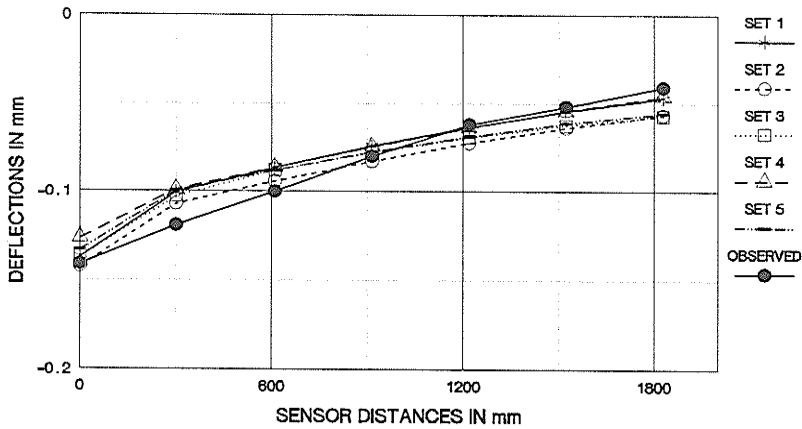
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

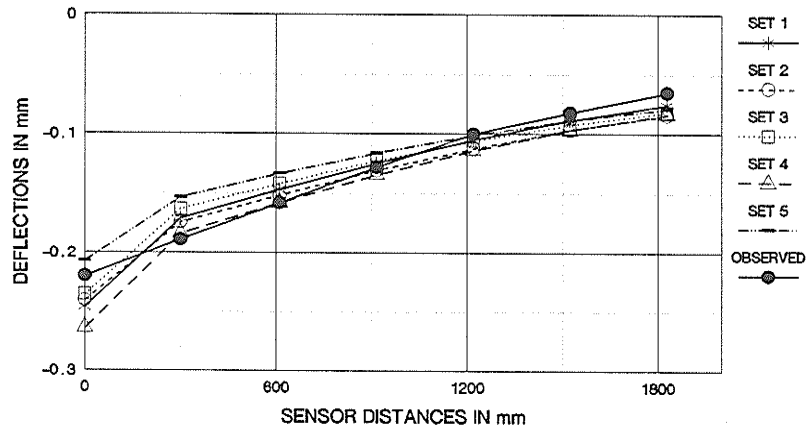


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

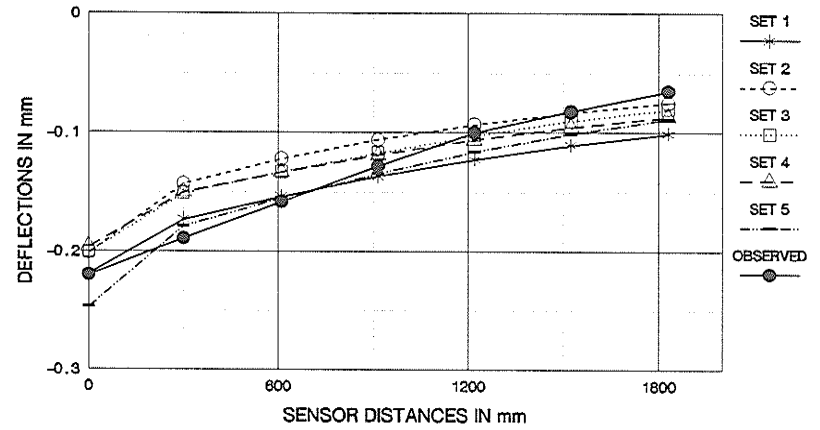
THUNDER BAY: RWY 12-30: STA. 5 + 500 R LOAD: 706 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

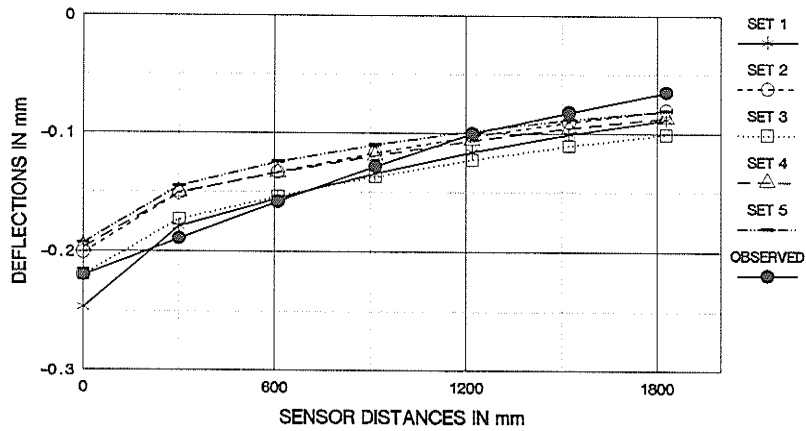
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

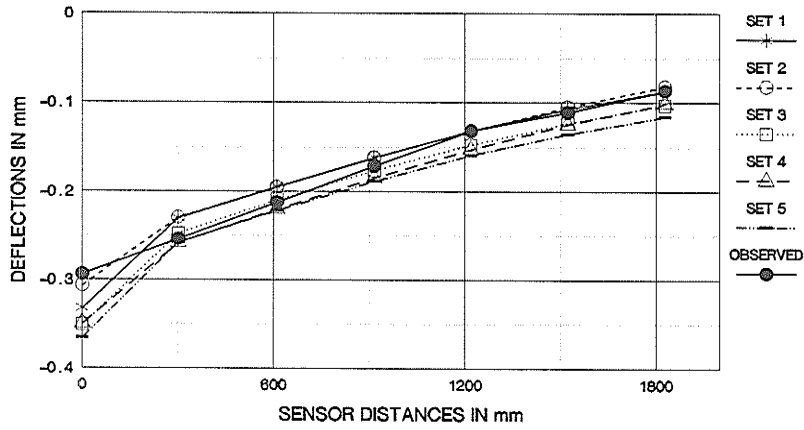


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

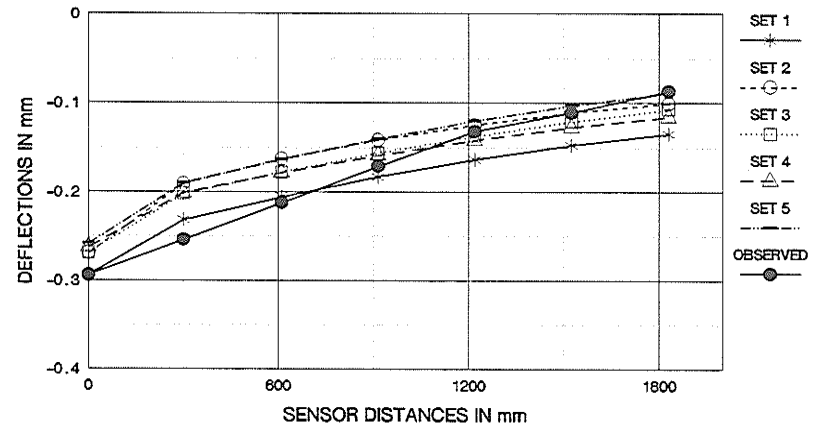
THUNDER BAY: RWY 12-30: STA. 5 + 500 R LOAD: 997 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

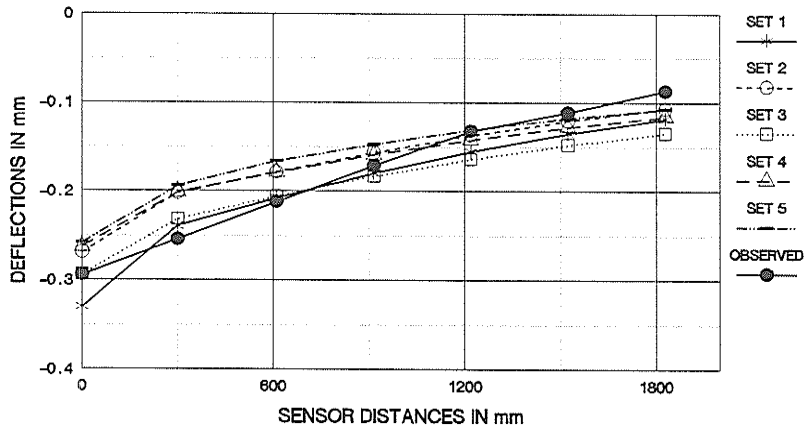
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

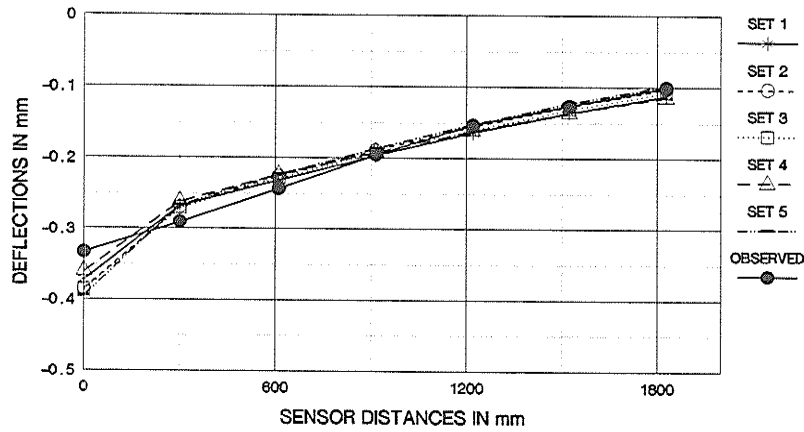


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

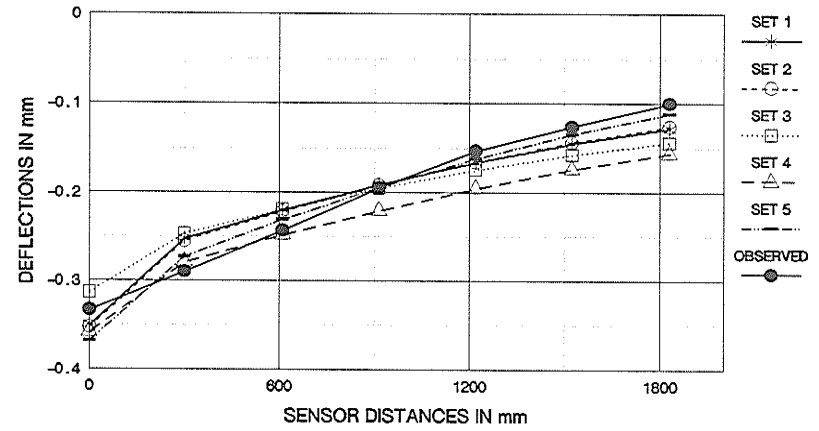
THUNDER BAY: RWY 12-30: STA. 5 + 500 R LOAD: 1333 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

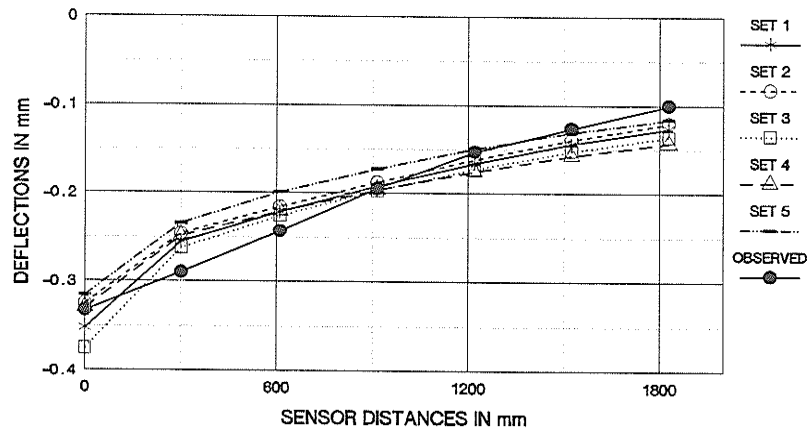
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

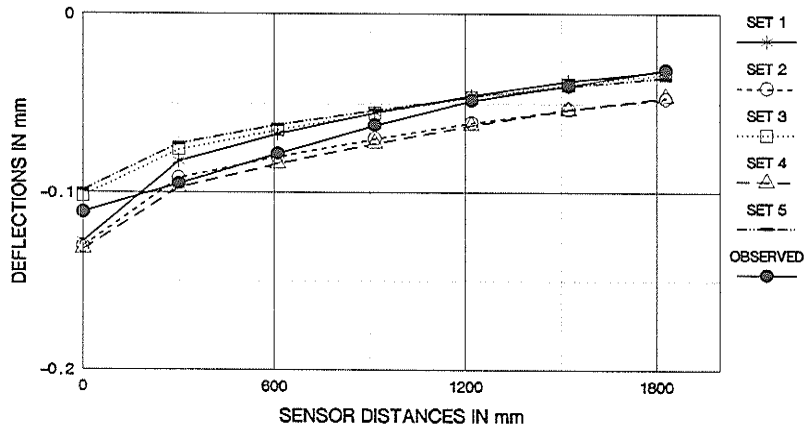


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

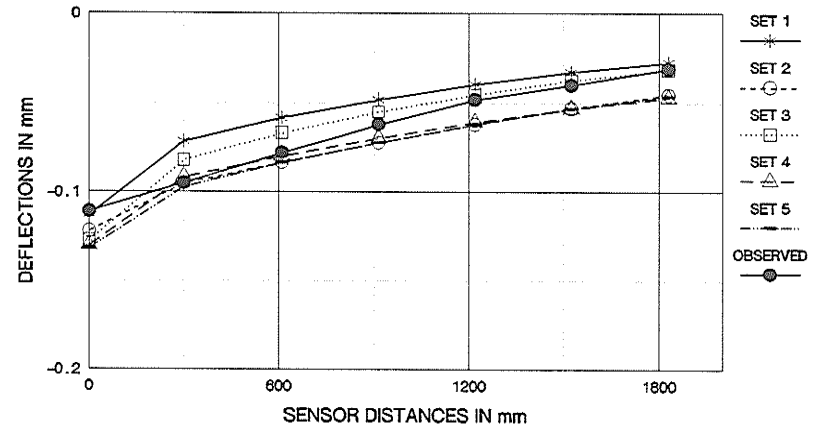
THUNDER BAY: RWY 12-30: STA. 5 + 500 R LOAD: 1423 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

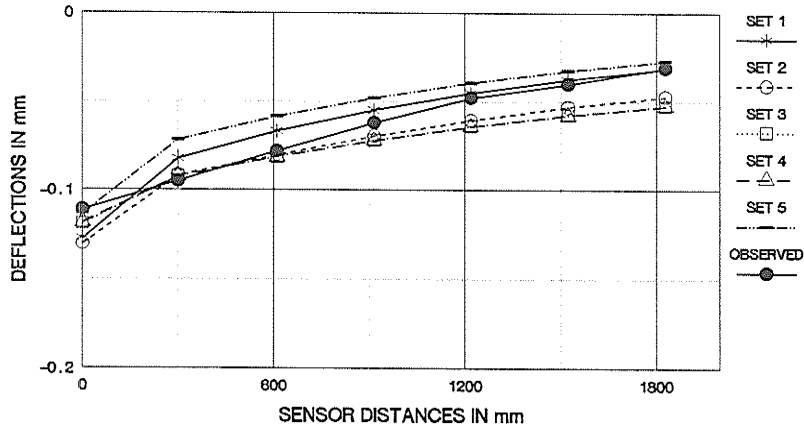
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

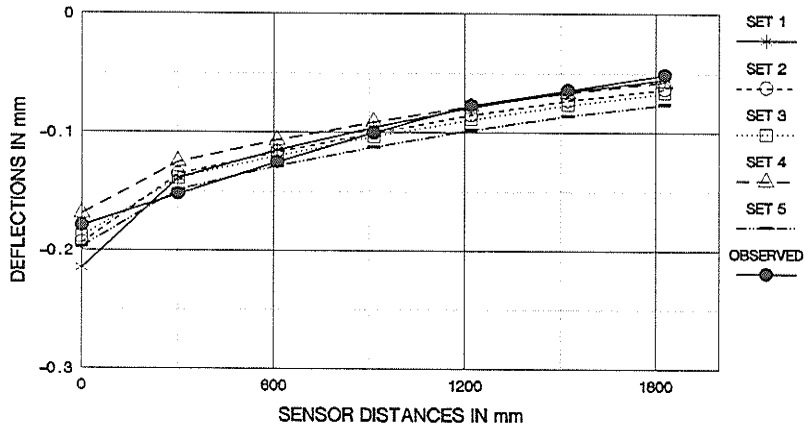


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

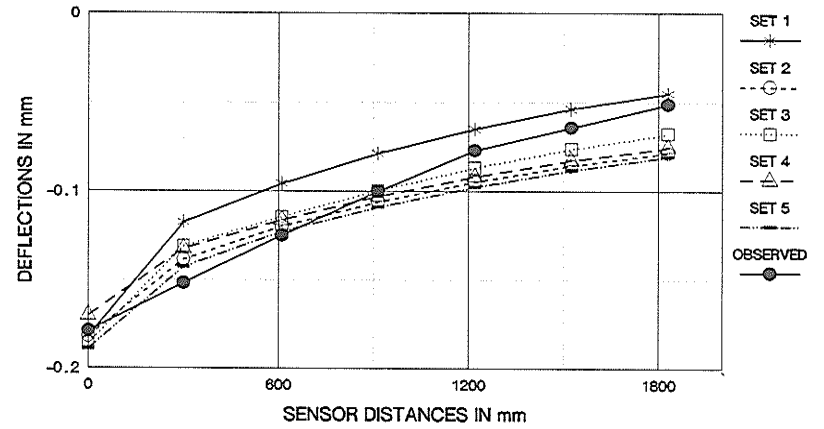
THUNDER BAY: RWY 12-30: STA. 5 + 600: LOAD 696 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

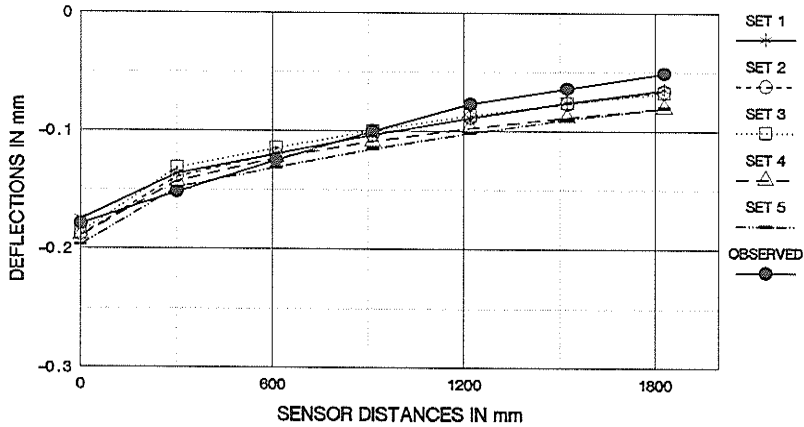
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

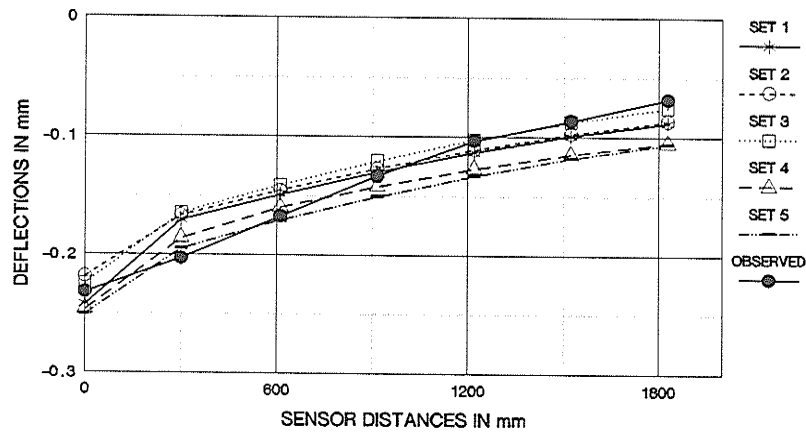


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

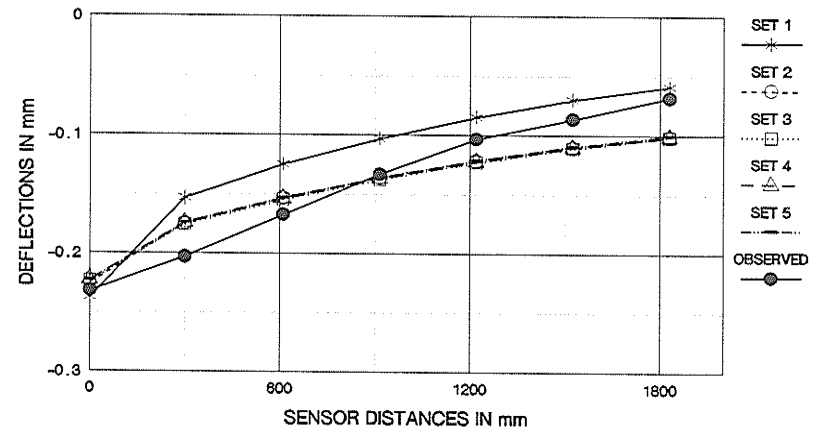
THUNDER BAY: RWY 12-30: STA. 5 + 600: LOAD 997 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

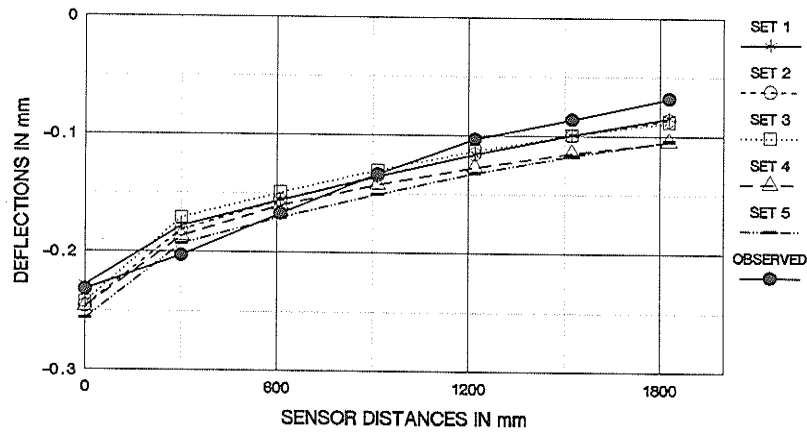
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

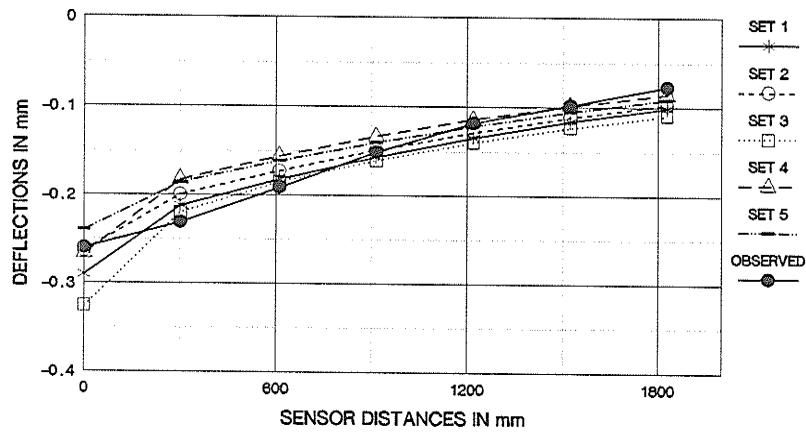


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

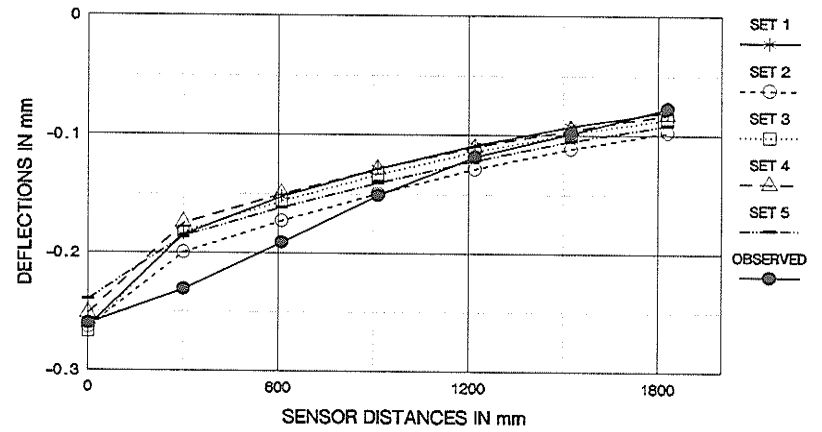
THUNDER BAY: RWY 12-30: STA . 5 + 600: LOAD 1299 kPa

CALCULATED AND OBSERVED DEFLECTION BASINS

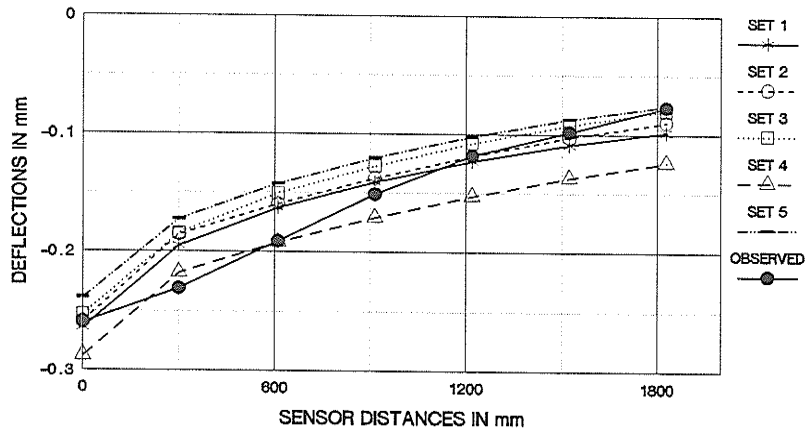
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



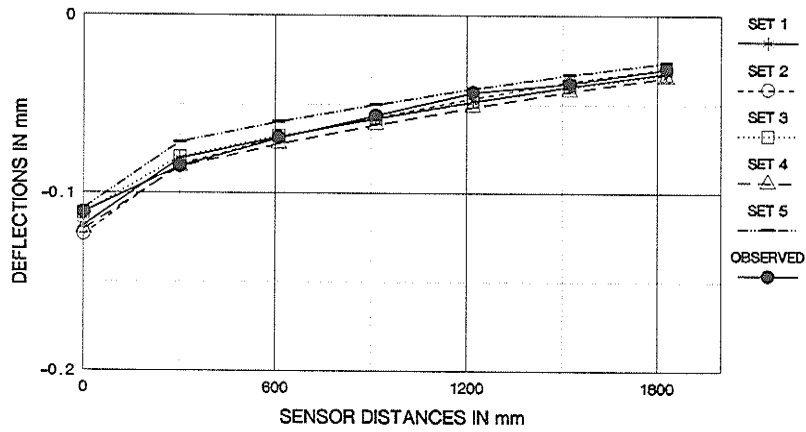
### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

THUNDER BAY: RWY 12-30: STA. 5 + 600: LOAD 1393 kPa

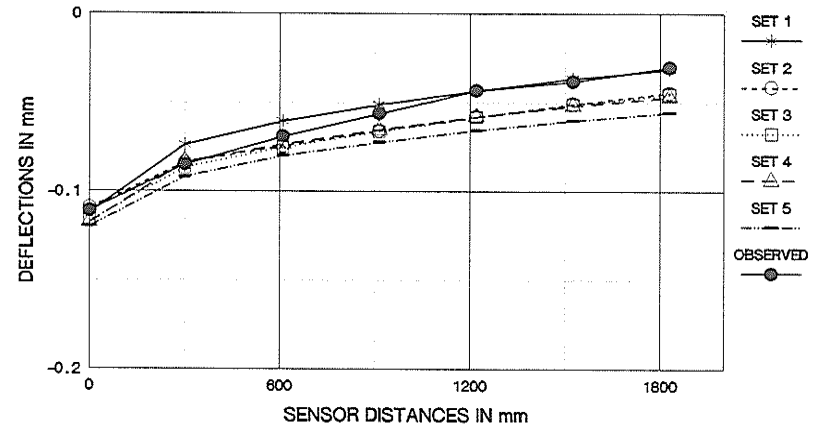
CALCULATED AND OBSERVED DEFLECTION BASINS



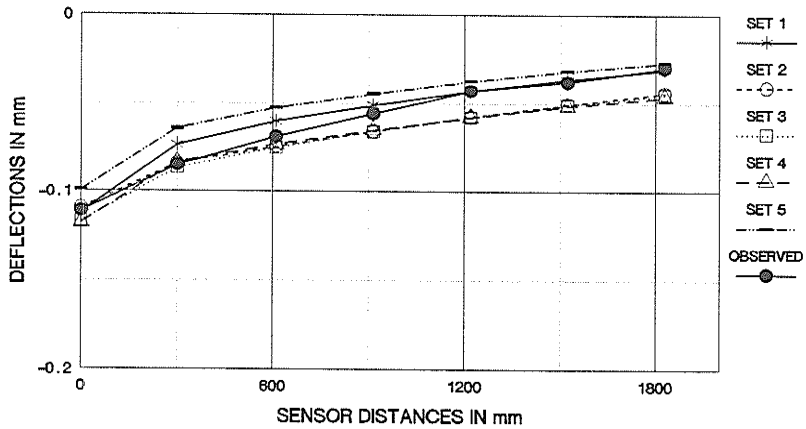
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

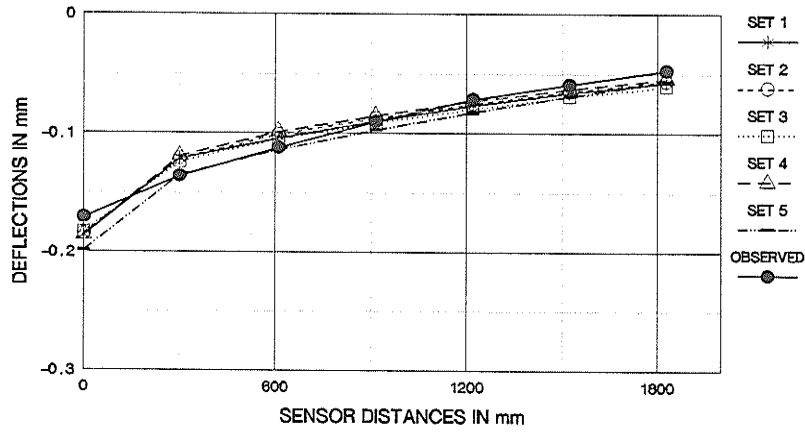


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

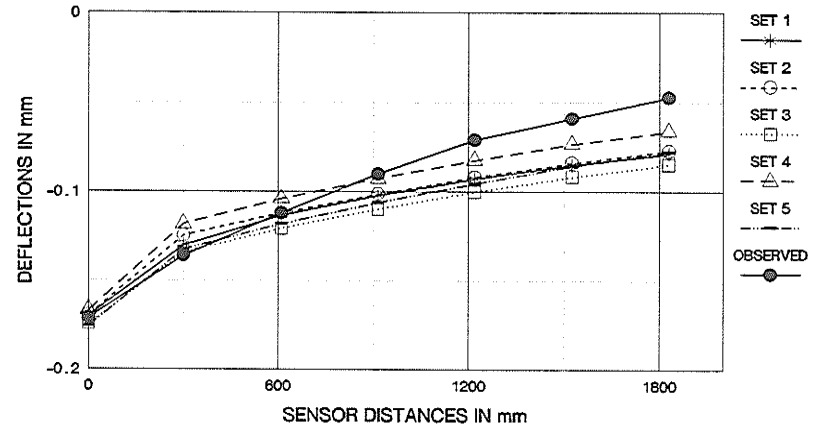
THUNDER BAY: RWY 12-30: STA. 5 + 650 R LOAD: 688 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

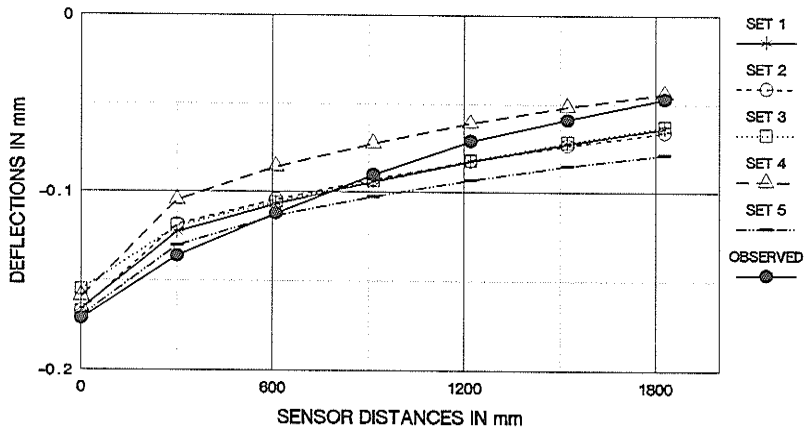
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

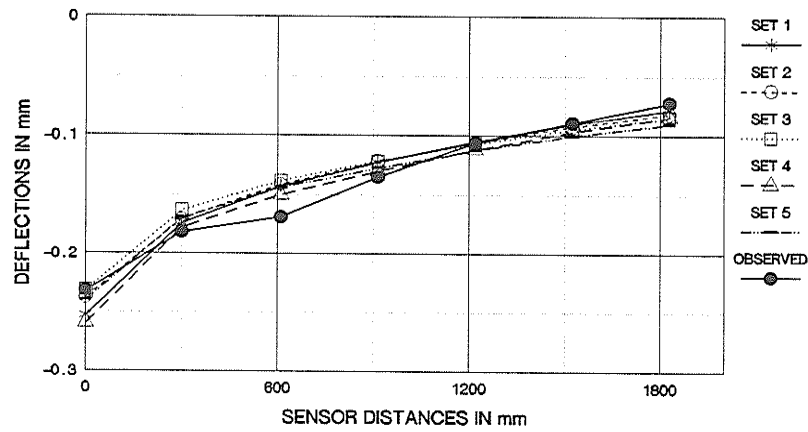


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

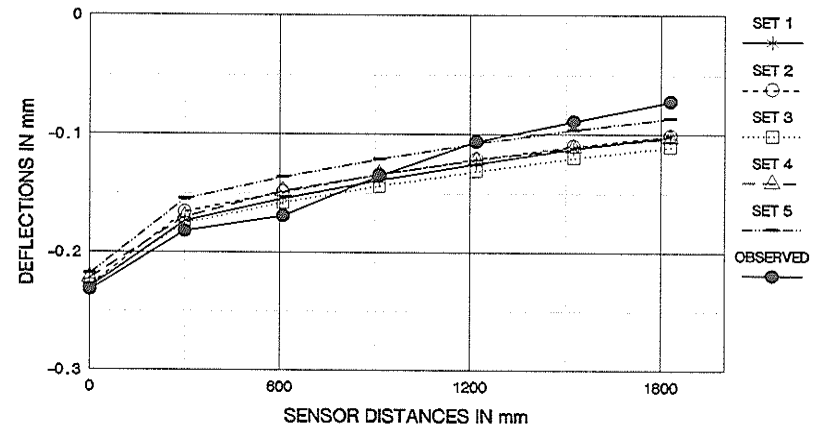
THUNDER BAY: RWY 12-30. STA. 5 + 650 R LOAD: 976 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

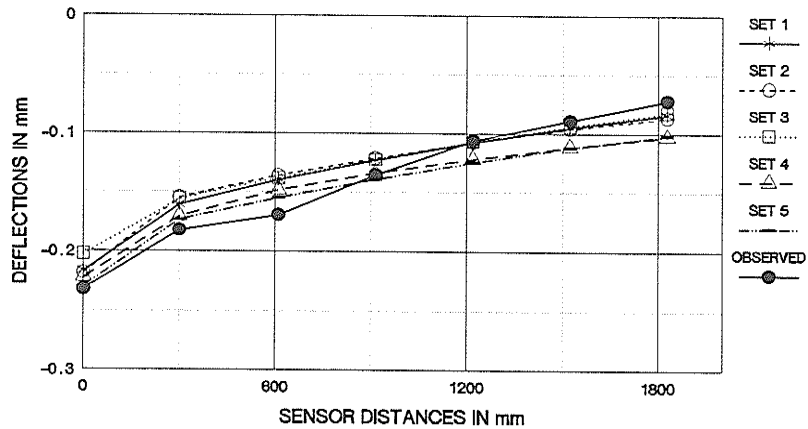
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

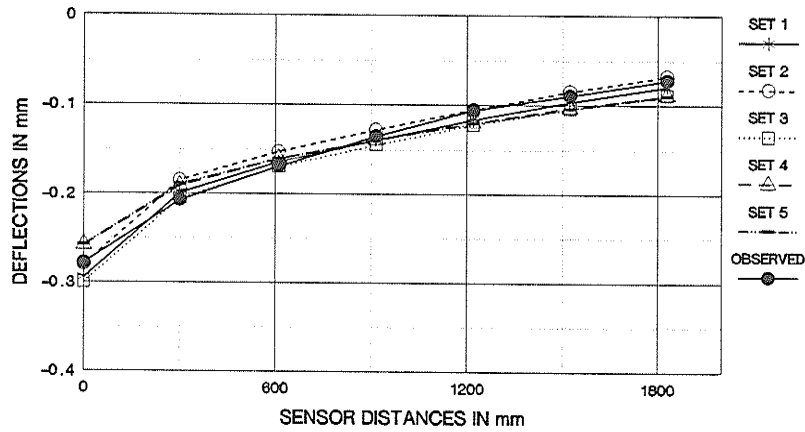


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

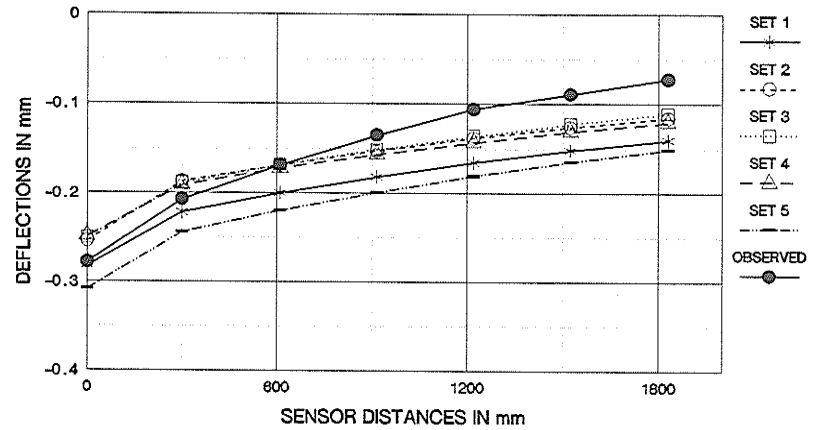
THUNDER BAY: RWY 12-30: STA. 5 + 650 R LOAD: 1276 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

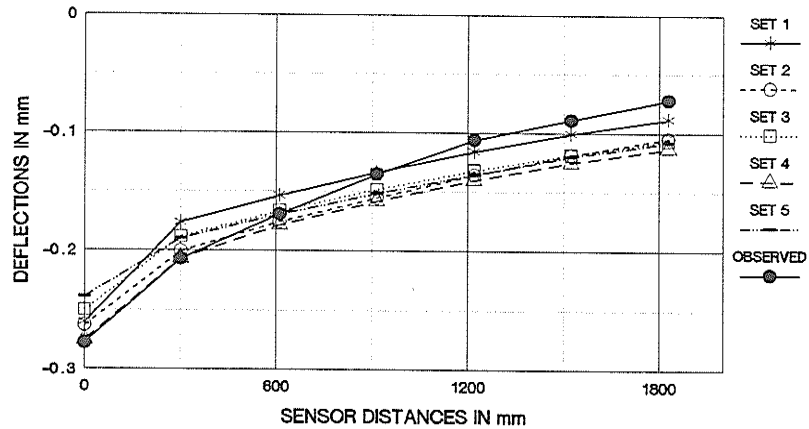
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

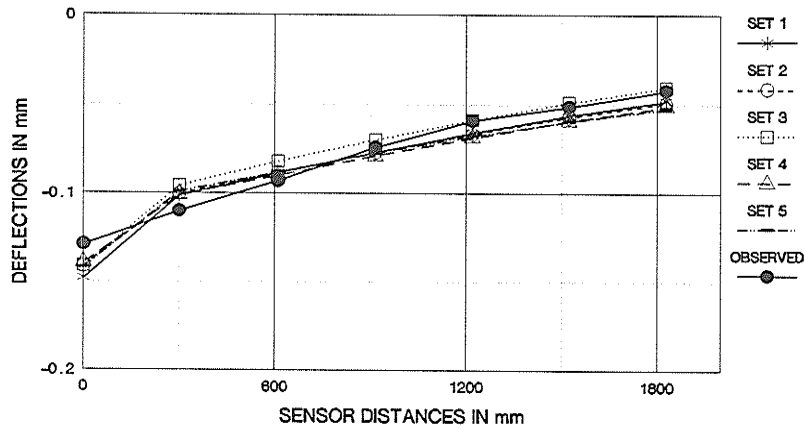


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

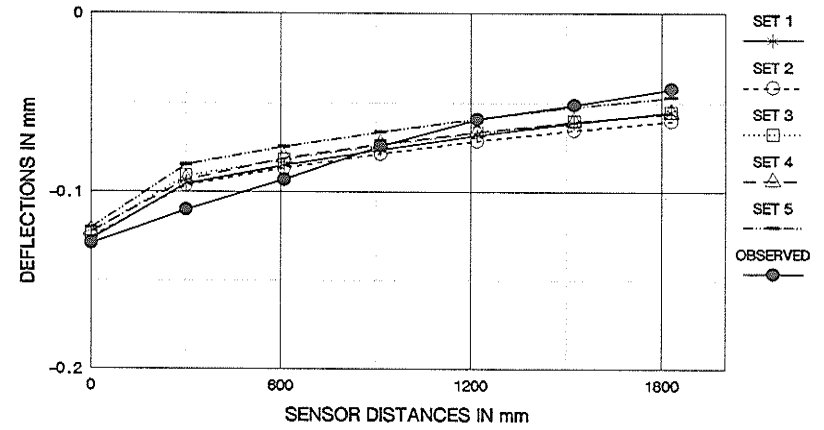
THUNDER BAY: RWY 12-30: STA. 5 + 650 R LOAD: 1391 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

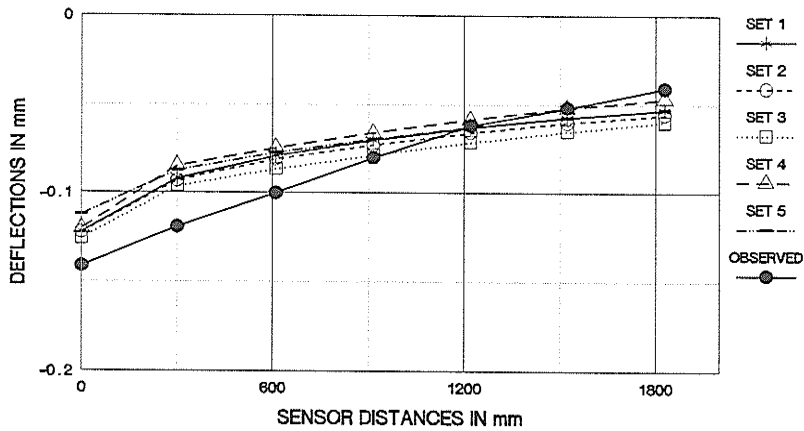
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

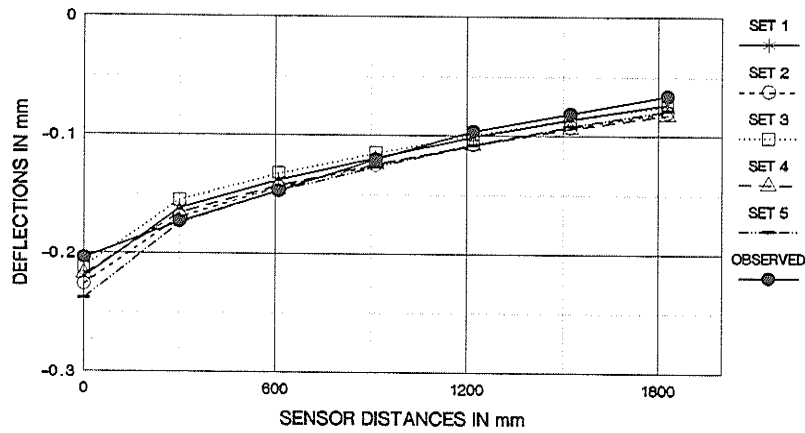


### ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL

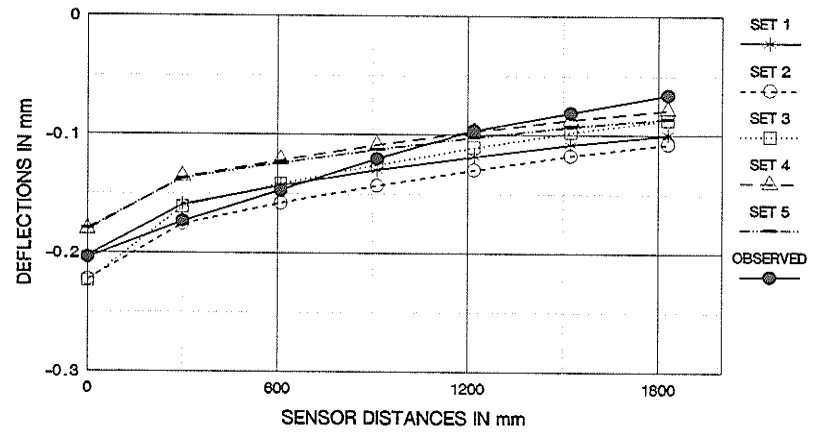
THUNDER BAY: RWY 12-30: STA. 6 + 100 R LOAD: 690 kPa .

CALCULATED AND OBSERVED DEFLECTION BASINS

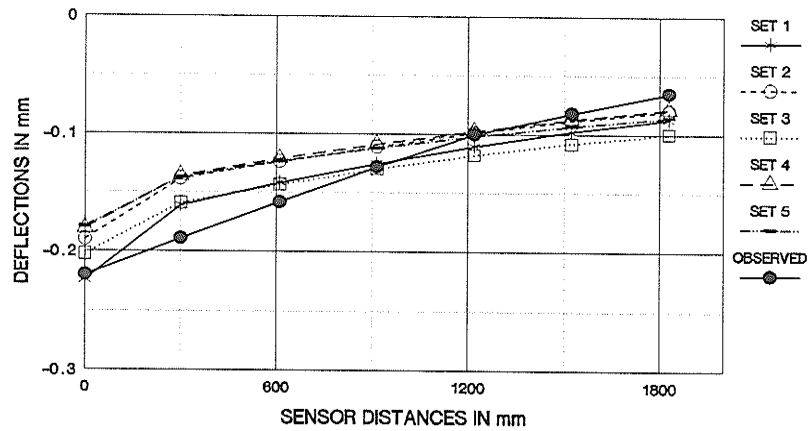
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

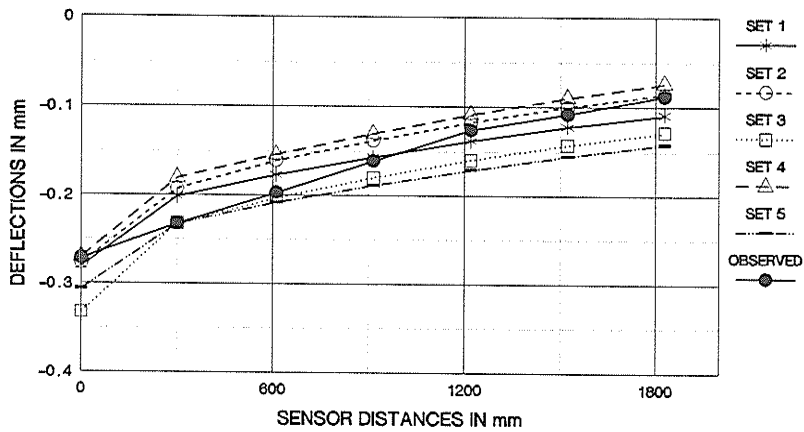


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

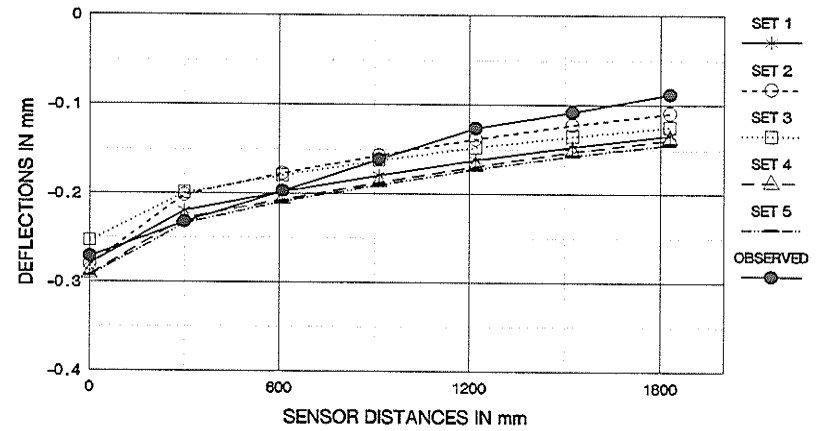
THUNDER BAY: RWY 12-30: STA. 6 + 100 R LOAD: 985 kPa .

CALCULATED AND OBSERVED DEFLECTION BASINS

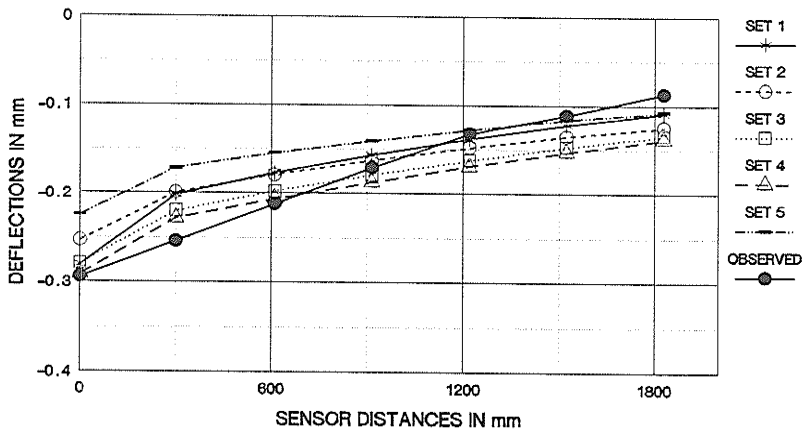
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

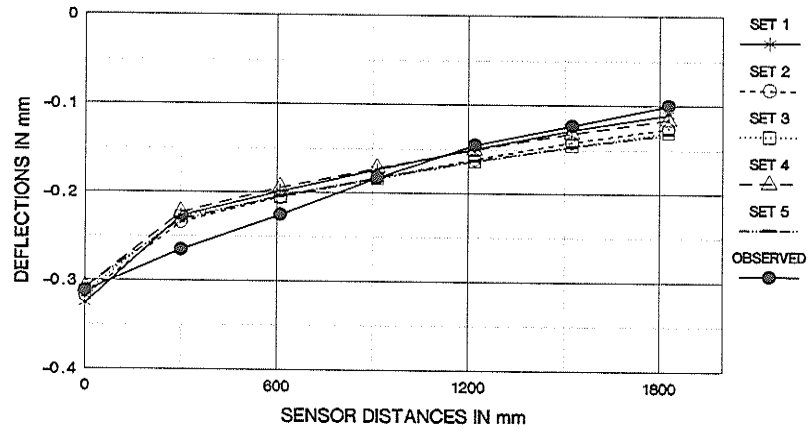


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

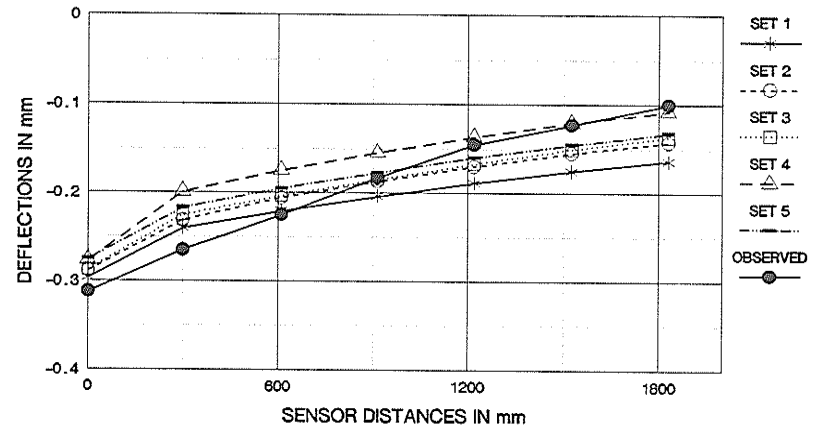
THUNDER BAY: RWY 12-30: STA. 6 + 100 R LOAD: 1233 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

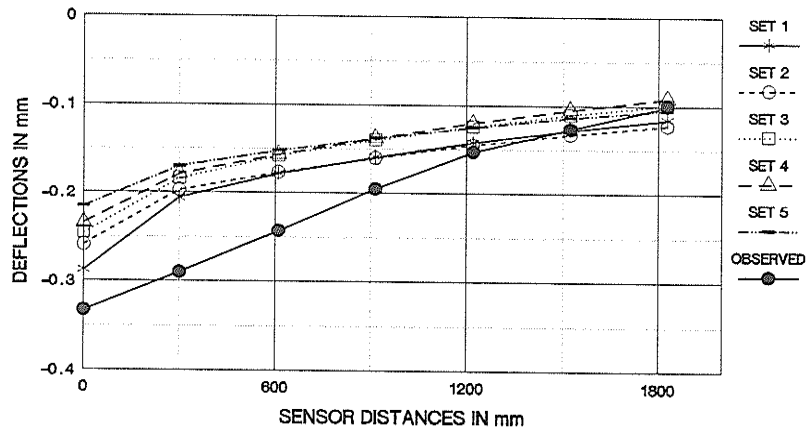
OPTIMIZING CRITERION: 'AREA' OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



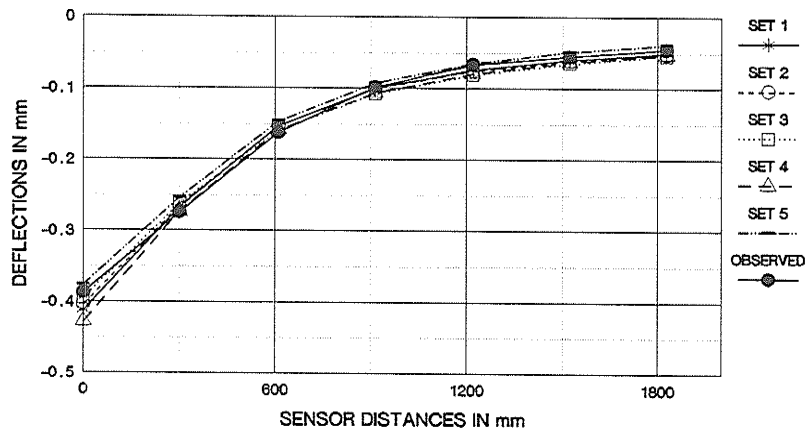
**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

THUNDER BAY: RWY 12-30: STA. 6 + 100 R LOAD: 1217 kPa.

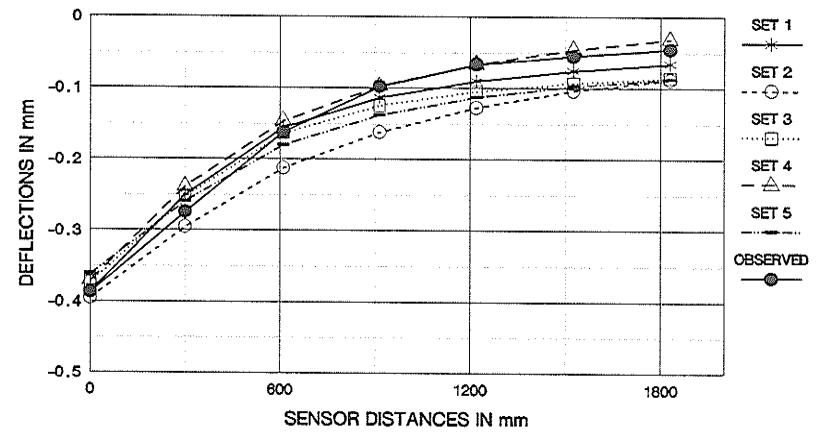
CALCULATED AND OBSERVED DEFLECTION BASINS



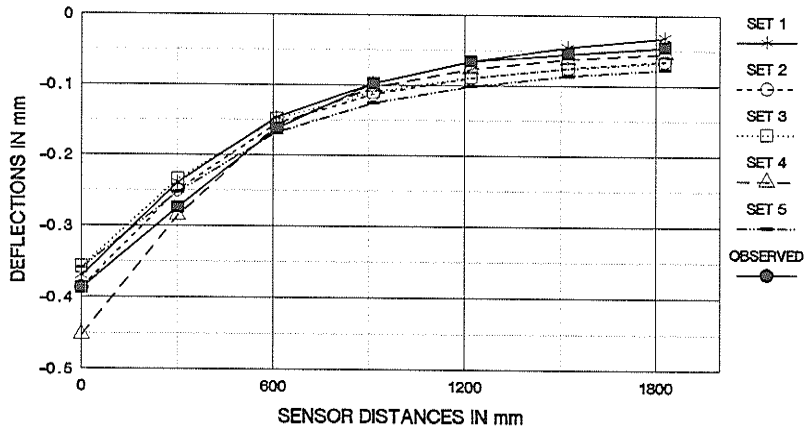
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

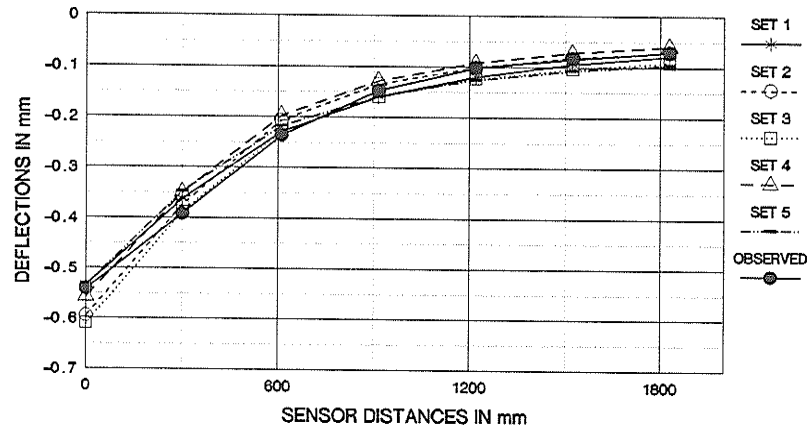


**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

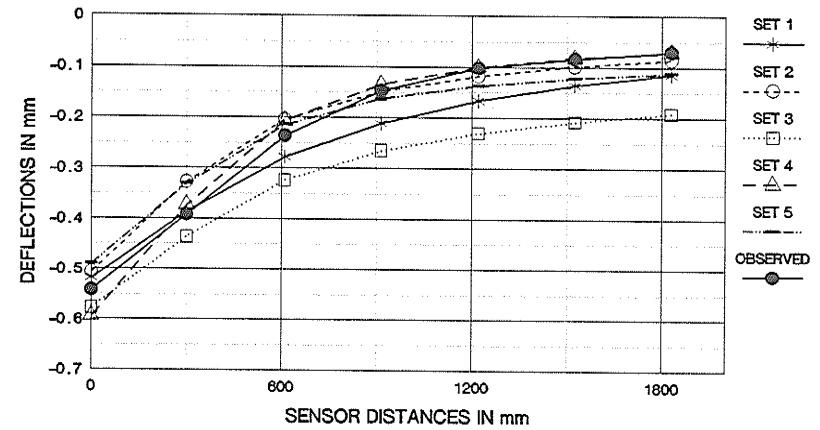
THUNDER BAY: TAXI A: STA. 10 + 740 L LOAD: 880 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

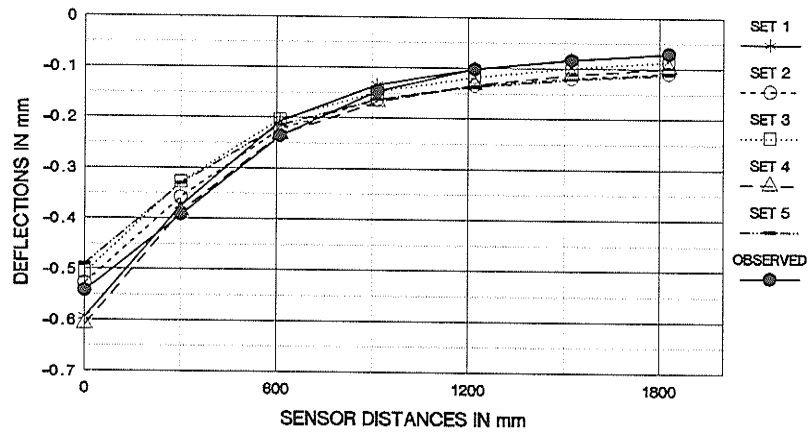
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



**ANSYS FEM ANALYSIS : X-ANISOTROPIC MODEL**

THUNDER BAY: TAXI A: STA. 10 + 740 L LOAD: 1154 kPa.

CALCULATED AND OBSERVED DEFLECTION BASINS

# ANSYS FEM ANALYSIS

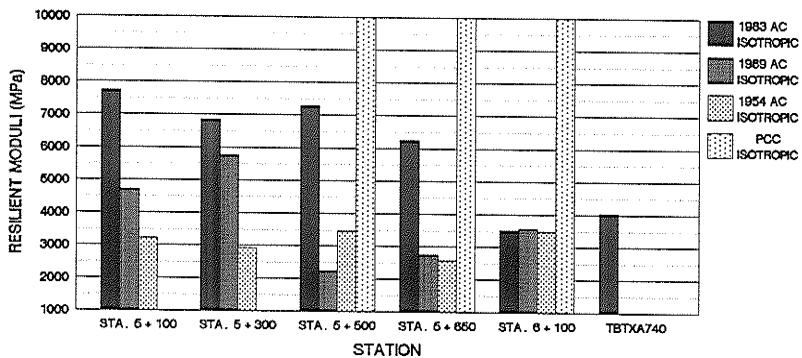
THUNDER BAY: RWY. 12-30: PROFILE OF MODULI OF BOUND LAYERS

OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN

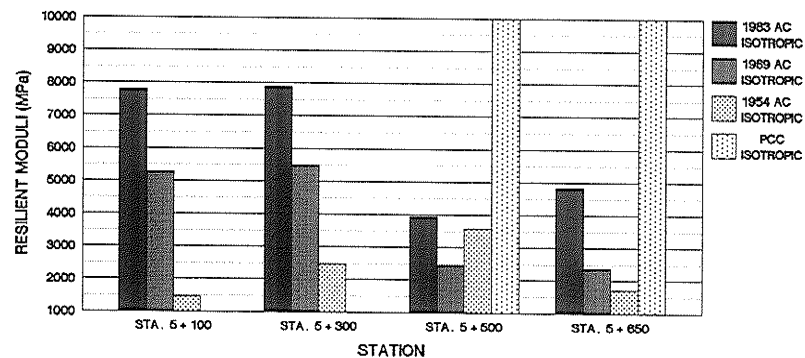
(BOTH ISOTROPIC AND X-ANISOTROPIC CASES)

*Thunder Bay  
Modul.  
Sep 3*

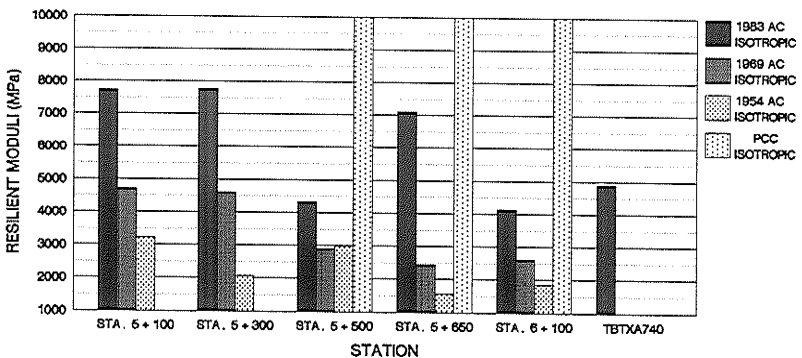
LOAD STEP 1: (750 kPa)



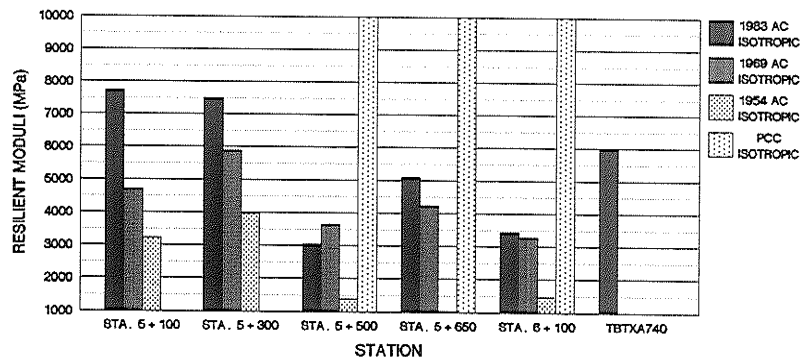
LOAD STEP 2: (1100 kPa)



LOAD STEP 3: (1300 kPa)



LOAD STEP 4: (1500 kPa)



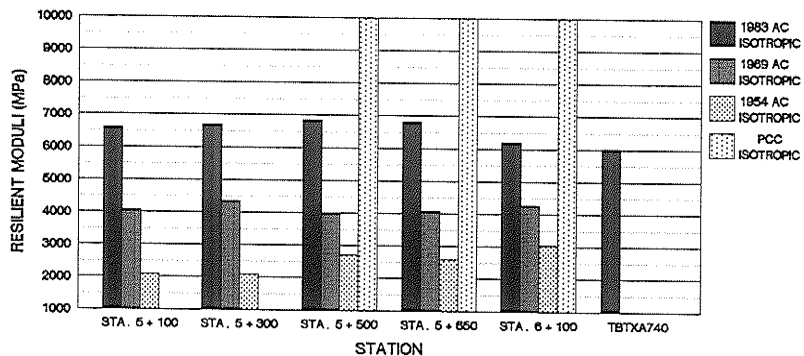
# ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: PROFILE OF MODULI OF BOUND LAYERS

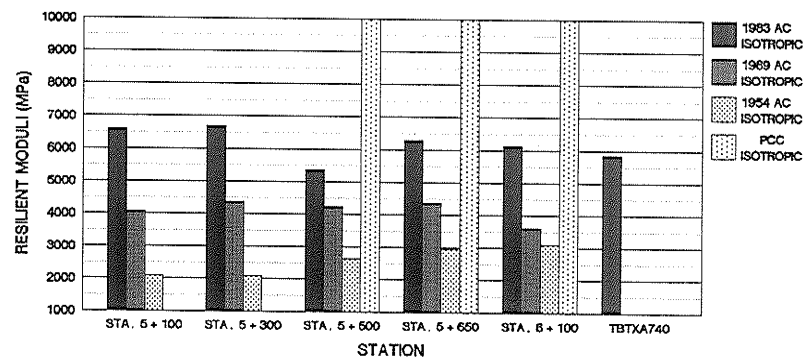
OPTIMIZING CRITERION: MAXIMUM DEFLECTION

(BOTH ISOTROPIC AND X-ANISOTROPIC CASES)

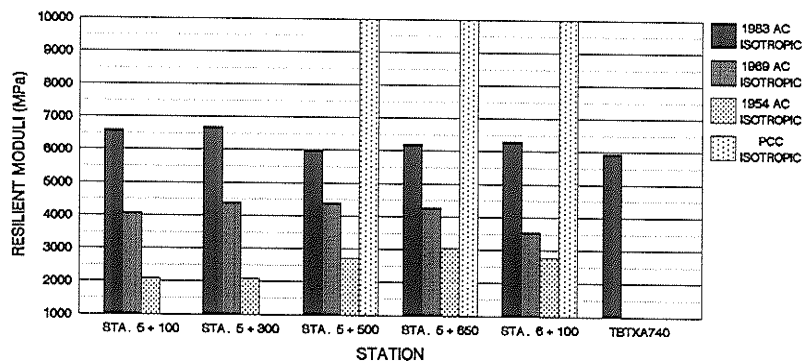
LOAD STEP 1: (750 kPa)



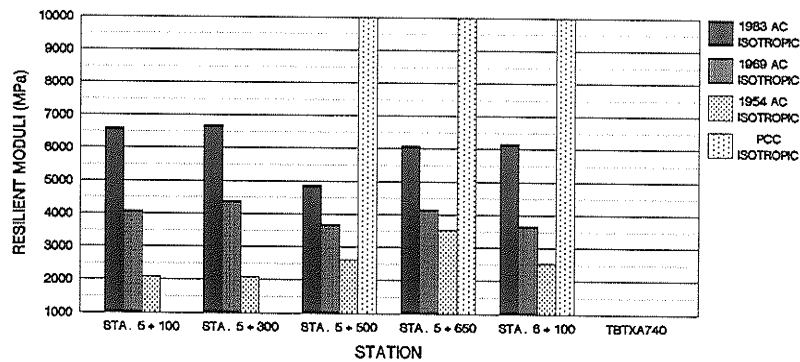
LOAD STEP 2: (1100 kPa)



LOAD STEP 3: (1300 kPa)



LOAD STEP 4: (1500 kPa)



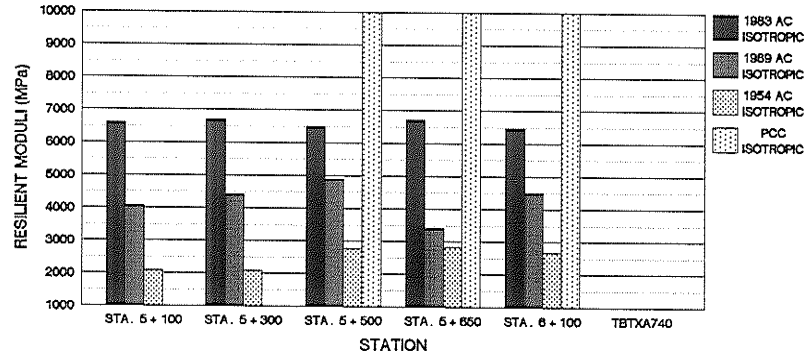
# ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: PROFILE OF MODULI OF BOUND LAYERS

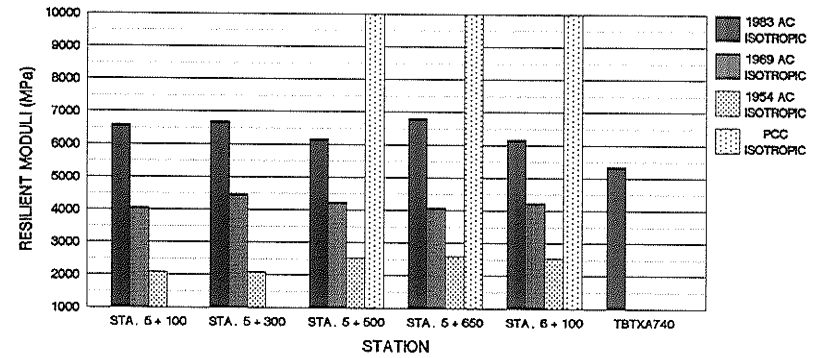
OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

(BOTH ISOTROPIC AND X-ANISOTROPIC CASES)

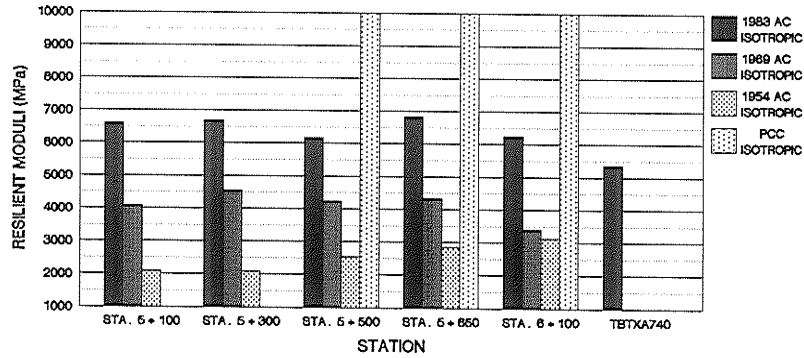
LOAD STEP 1: (750 kPa)



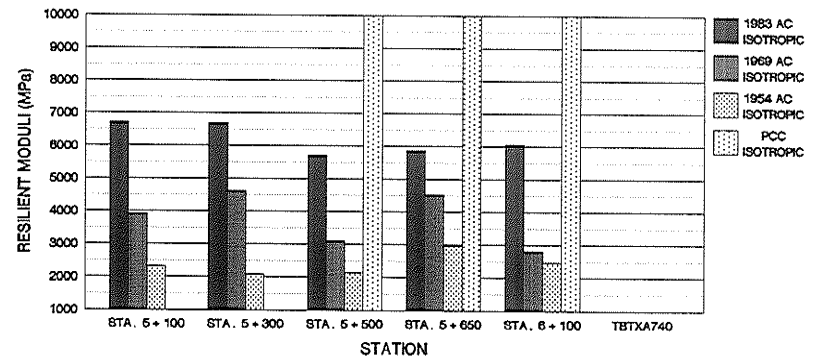
LOAD STEP 2: (1100 kPa)



LOAD STEP 3: (1300 kPa)



LOAD STEP 4: (1500 kPa)



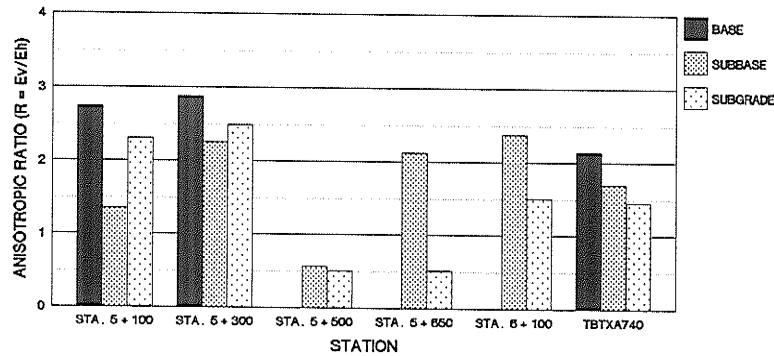
# ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: PROFILE OF MODULI OF UNBOUND LAYERS

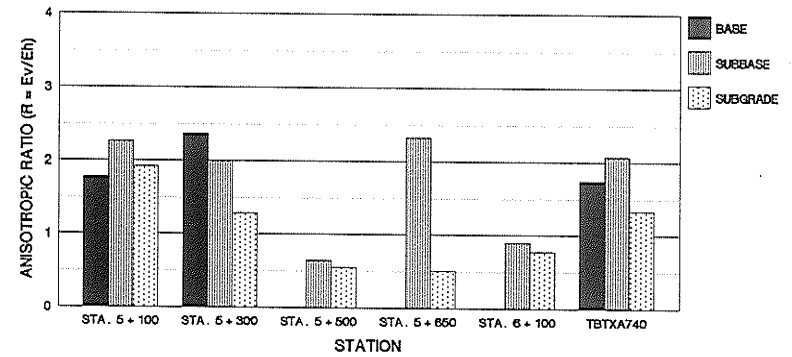
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN

(BOTH ISOTROPIC AND X-ANISOTROPIC CASES)

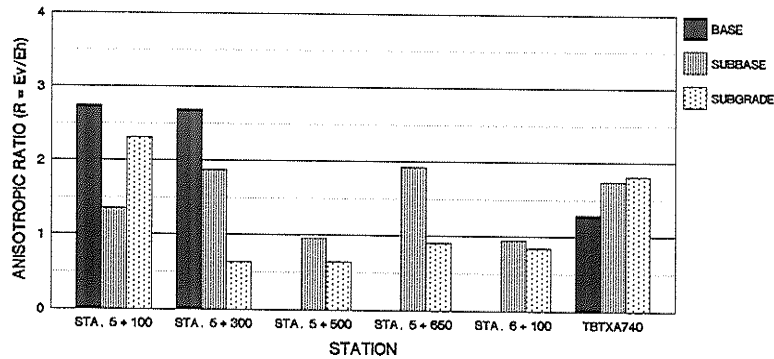
LOAD STEP 1: (750 kPa)



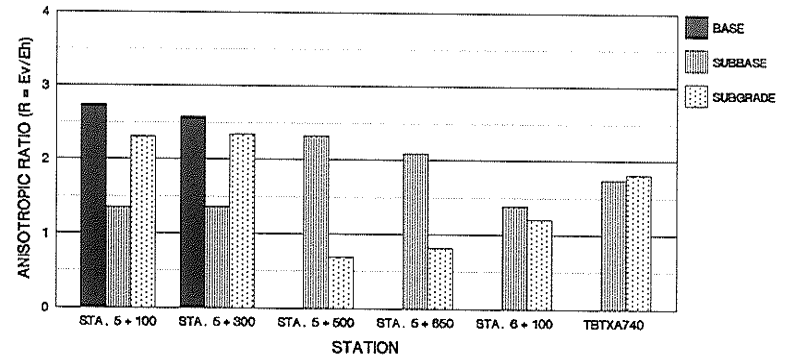
LOAD STEP 2: (1100 kPa)



LOAD STEP 3: (1300 kPa)



LOAD STEP 4: (1500 kPa)



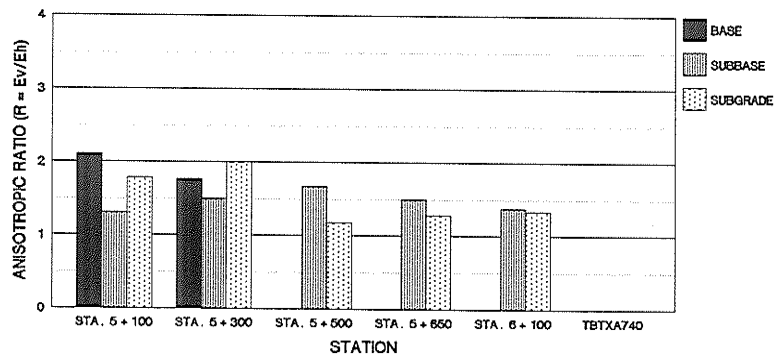
# ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: PROFILE OF MODULI OF UNBOUND LAYERS

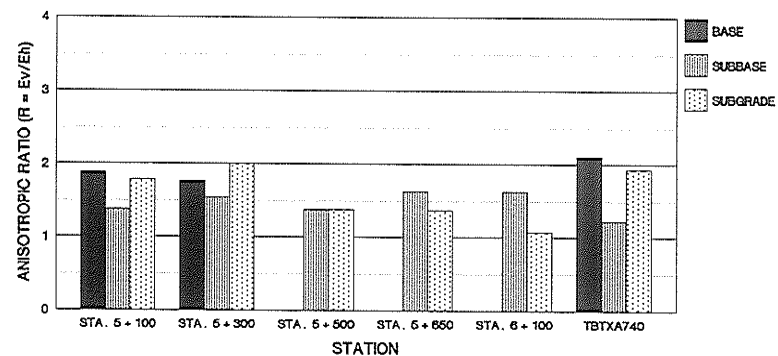
OPTIMIZING CRITERION: MAXIMUM DEFLECTION

(BOTH ISOTROPIC AND X-ANISOTROPIC CASES)

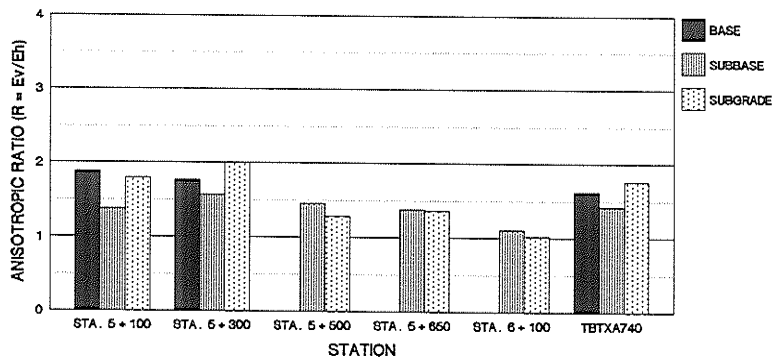
LOAD STEP 1: (750 kPa)



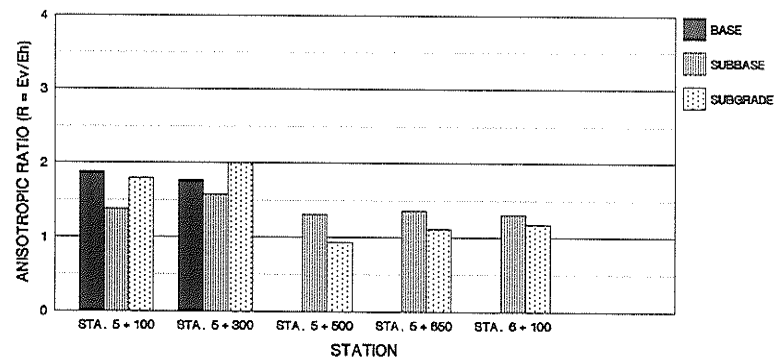
LOAD STEP 2: (1100 kPa)



LOAD STEP 3: (1300 kPa)



LOAD STEP 4: (1500 kPa)



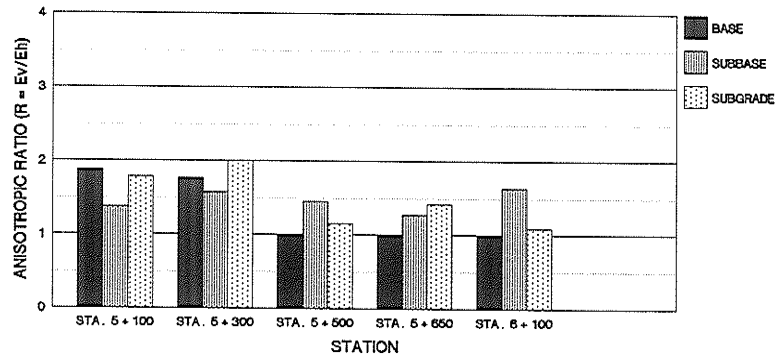
# ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: PROFILE OF MODULI OF UNBOUND LAYERS

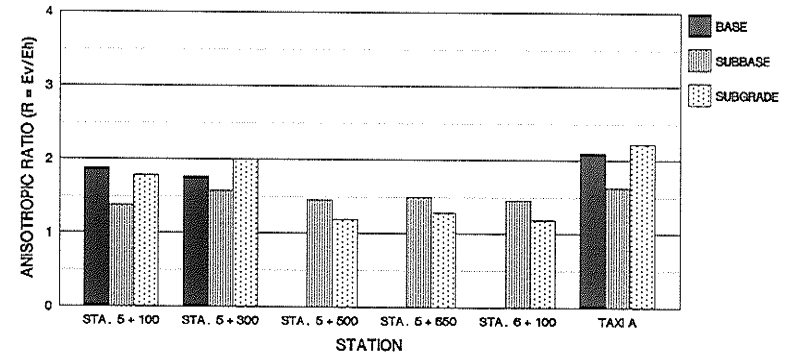
OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS

(BOTH ISOTROPIC AND X-ANISOTROPIC CASES)

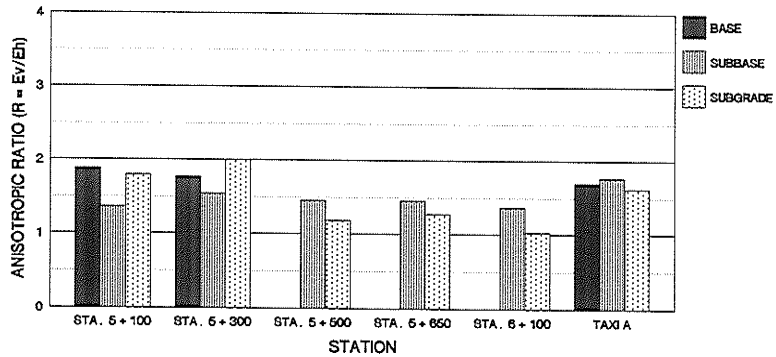
LOAD STEP 1: (750 kPa)



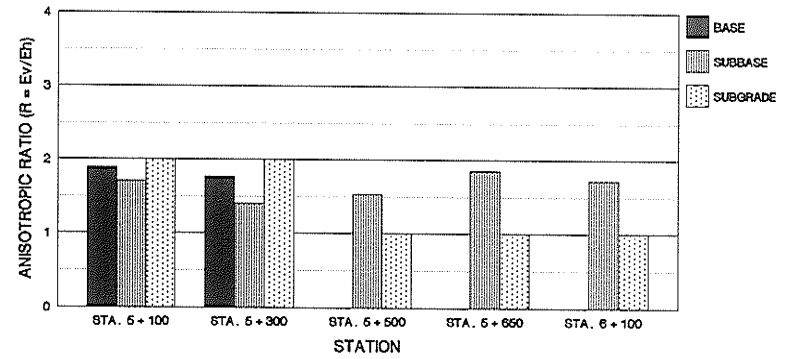
LOAD STEP 2: (1100 kPa)



LOAD STEP 3: (1300 kPa)

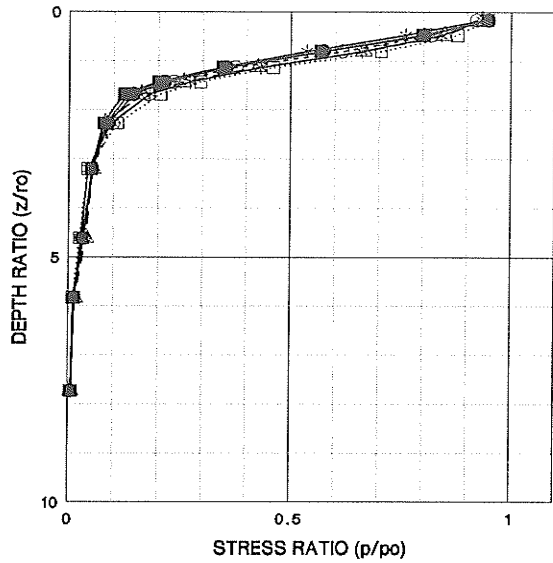


LOAD STEP 4: (1500 kPa)

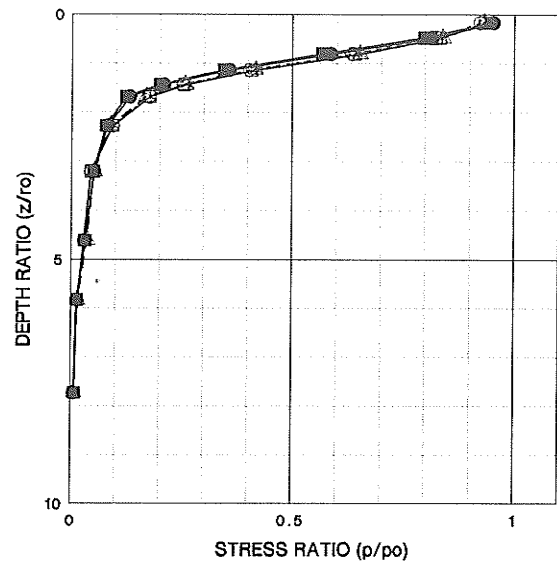




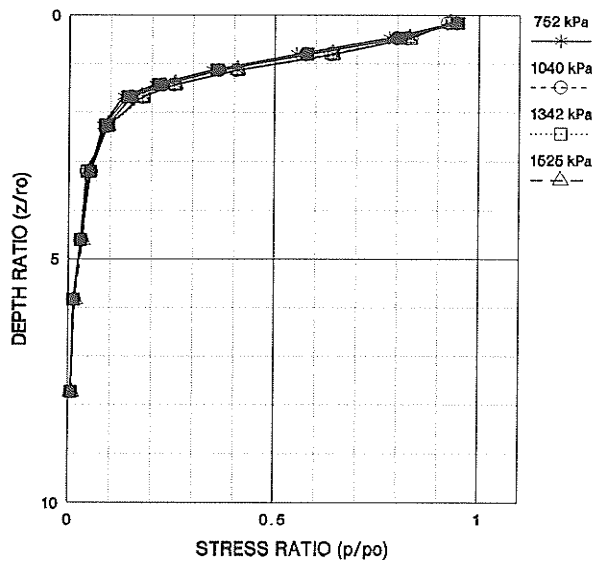
OPTIMIZING CRITERION: 'AREA' OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



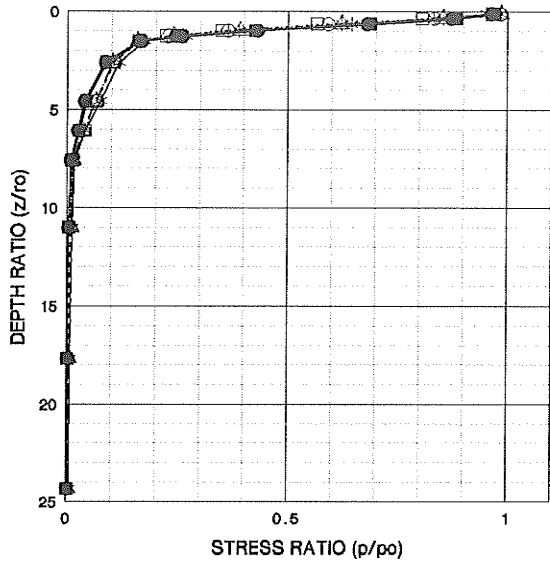
### ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: STA. 5 + 100 R

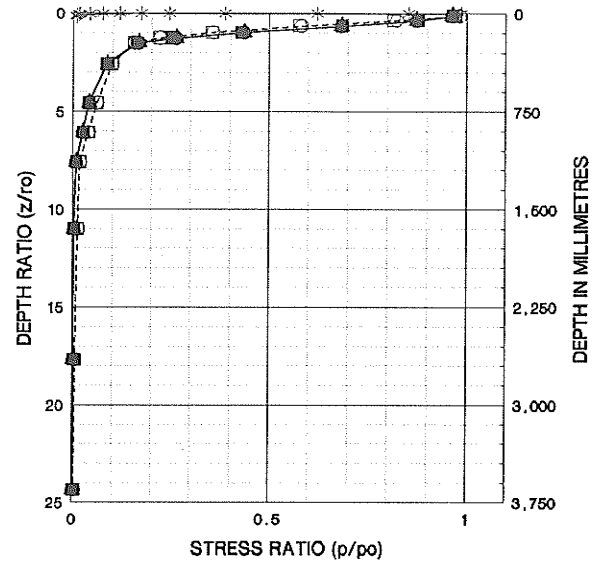
DISTRIBUTION OF VERTICAL STRESSES ON C.L. OF LOADS

(ISOTROPIC AND X-ANISOTROPIC MODELS)

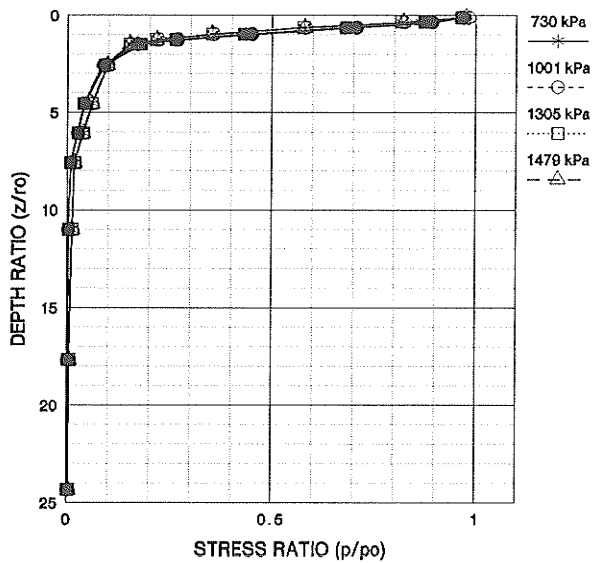
OPTIMIZING CRITERION: 'AREA' OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



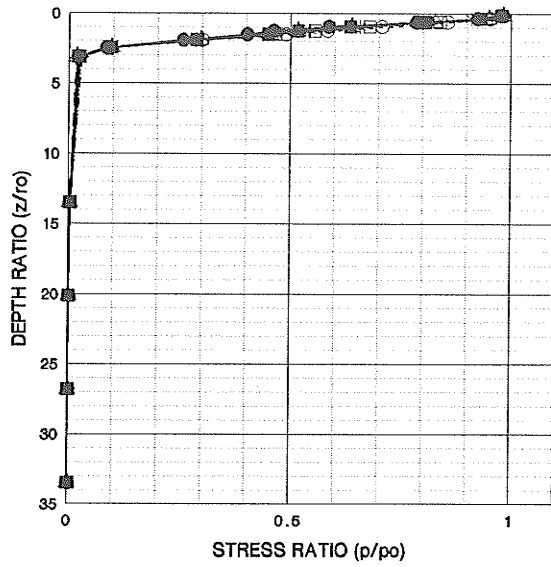
**ANSYS FEM ANALYSIS**

THUNDER BAY: RWY. 12-30: STA. 5 + 300 R.

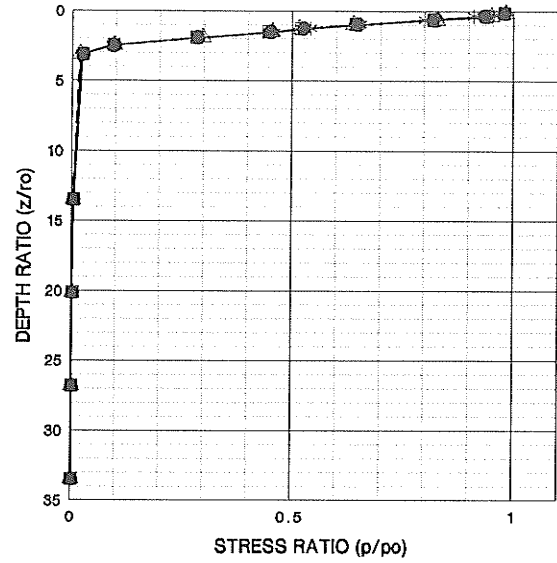
DISTRIBUTION OF VERTICAL STRESSES ON C. L. OF LOADS

(ISOTROPIC AND ANISOTROPIC MODELS)

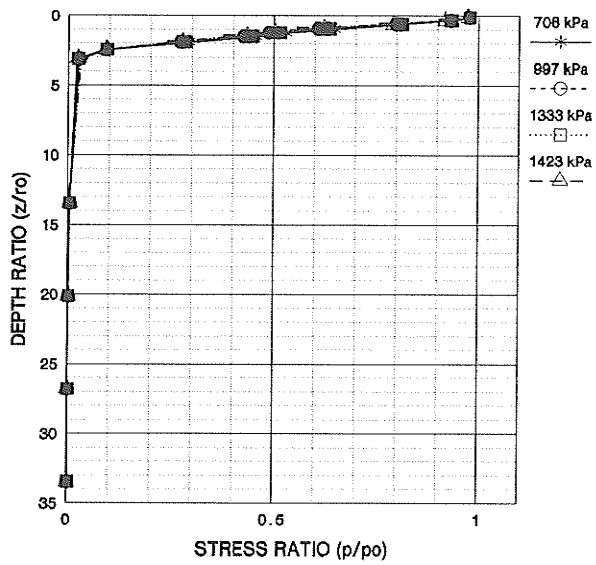
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



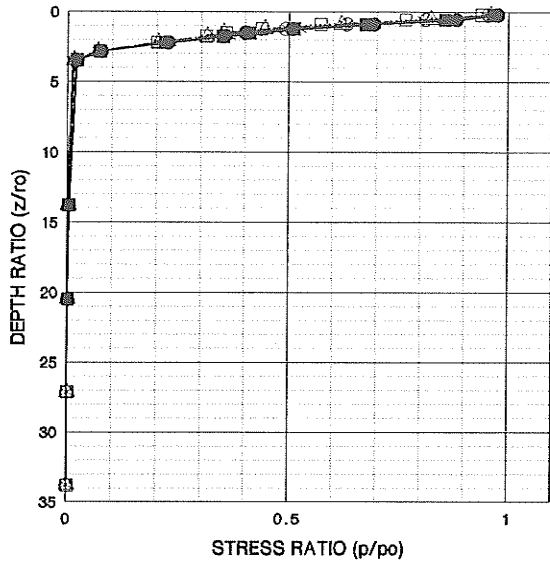
### ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: STA. 5 + 500 R.

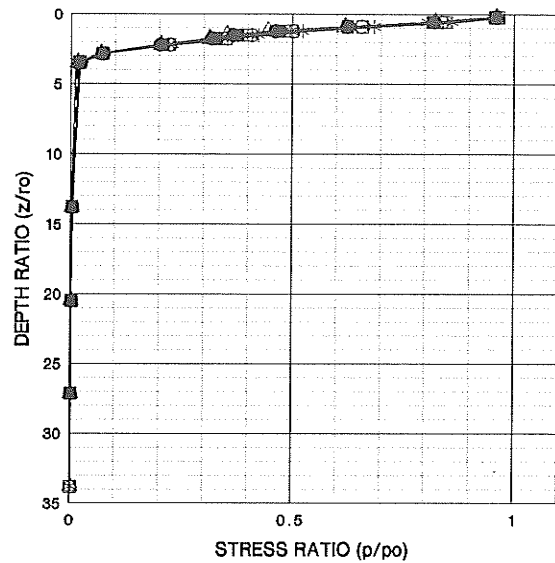
DISTRIBUTION OF VERTICAL STRESSES ON C.L. OF LOADS

(ISOTROPIC AND ANISOTROPIC MODELS)

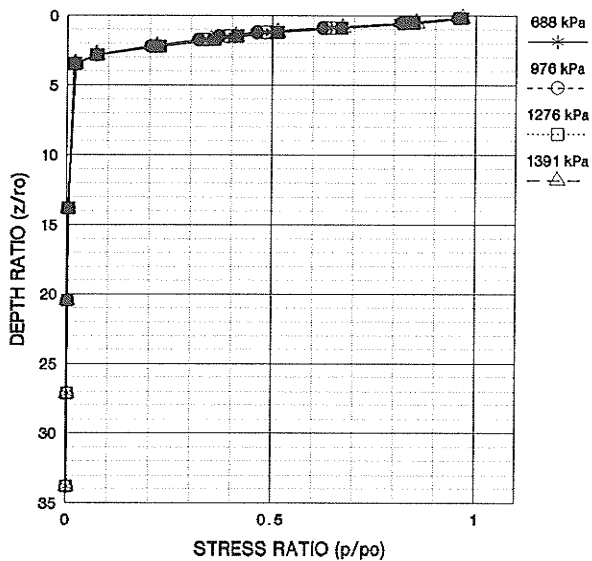
OPTIMIZING CRITERION: 'AREA' OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



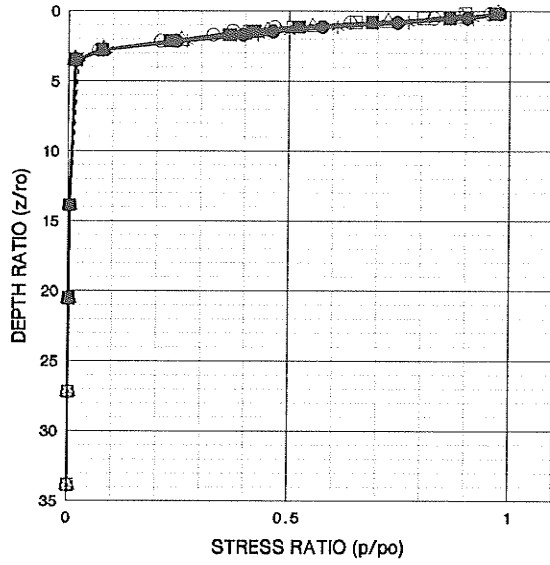
### ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: STA. 5 + 650 R.

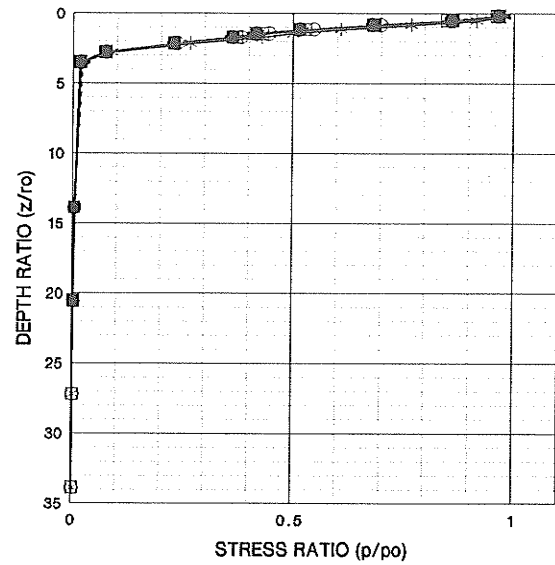
DISTRIBUTION OF VERTICAL STRESSES ON C. L. OF LOADS

(ISOTROPIC AND ANISOTROPIC MODELS)

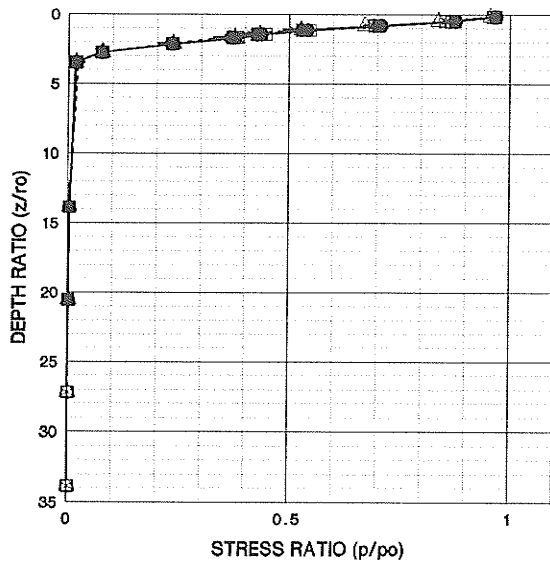
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



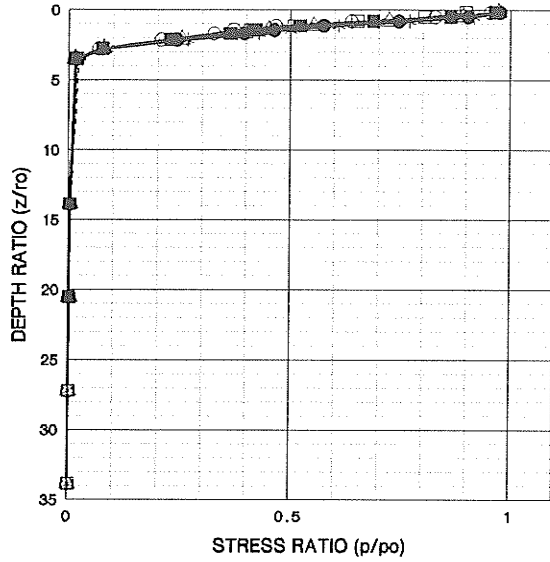
### ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: STA. 6 + 100 R.

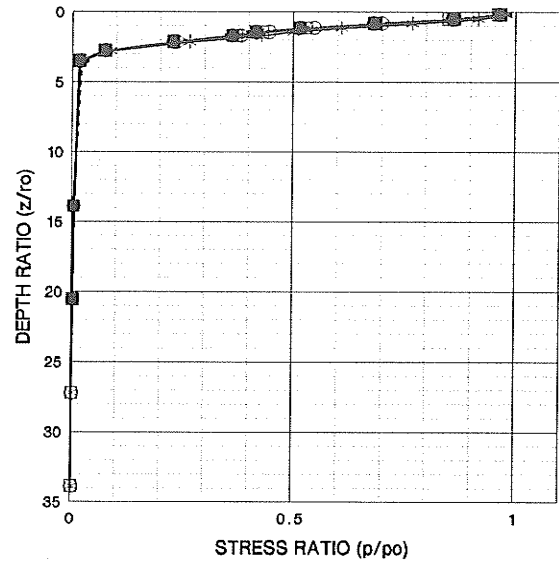
DISTRIBUTION OF VERTICAL STRESSES ON C.L. OF LOADS

(ISOTROPIC AND ANISOTROPIC MODELS)

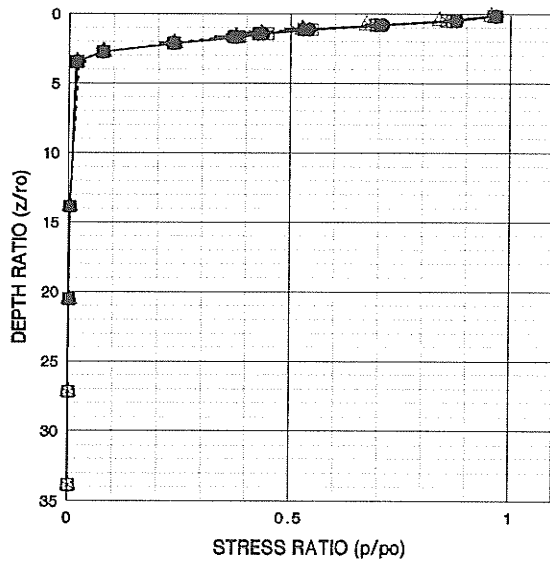
OPTIMIZING CRITERION: 'AREA' OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



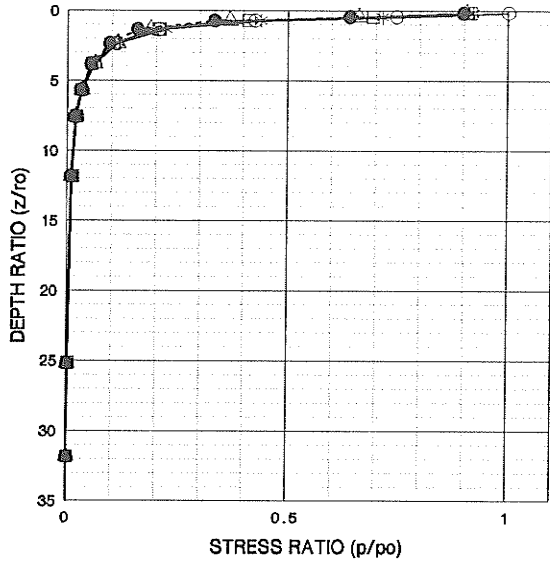
### ANSYS FEM ANALYSIS

THUNDER BAY: RWY. 12-30: STA. 6 + 100 R.

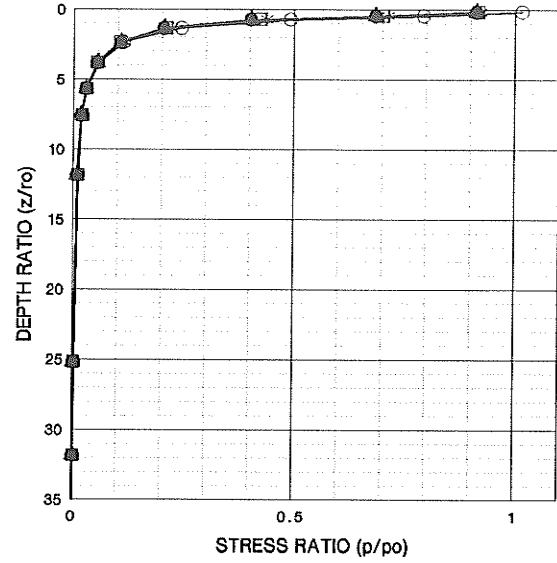
DISTRIBUTION OF VERTICAL STRESSES ON C.L. OF LOADS

(ISOTROPIC AND ANISOTROPIC MODELS)

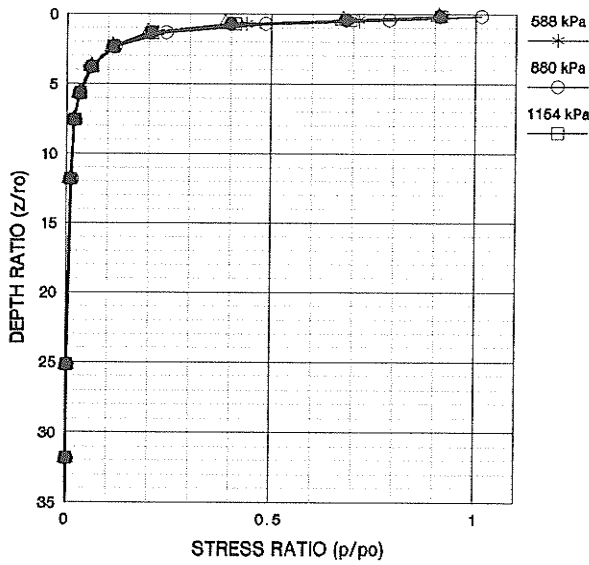
OPTIMIZING CRITERION: "AREA" OF DEFLECTION BASIN



OPTIMIZING CRITERION: MAXIMUM DEFLECTION



OPTIMIZING CRITERION: RMS VALUE OF DEFLECTIONS



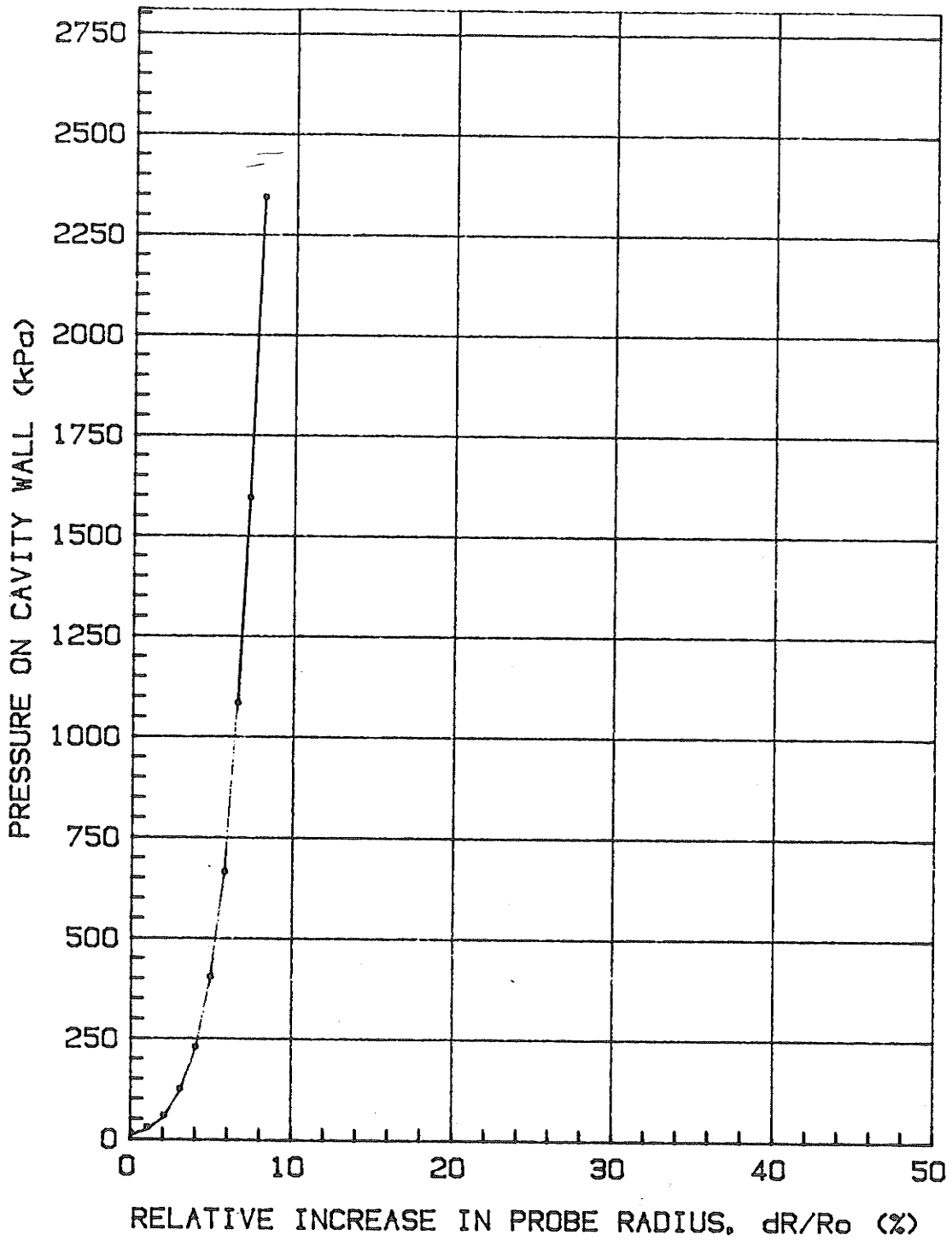
### ANSYS FEM ANALYSIS

THUNDER BAY: TAXI A: STA. 10 + 740 L.

DISTRIBUTION OF VERTICAL STRESSES ON C.L. OF LOADS

(ISOTROPIC AND ANISOTROPIC MODELS)

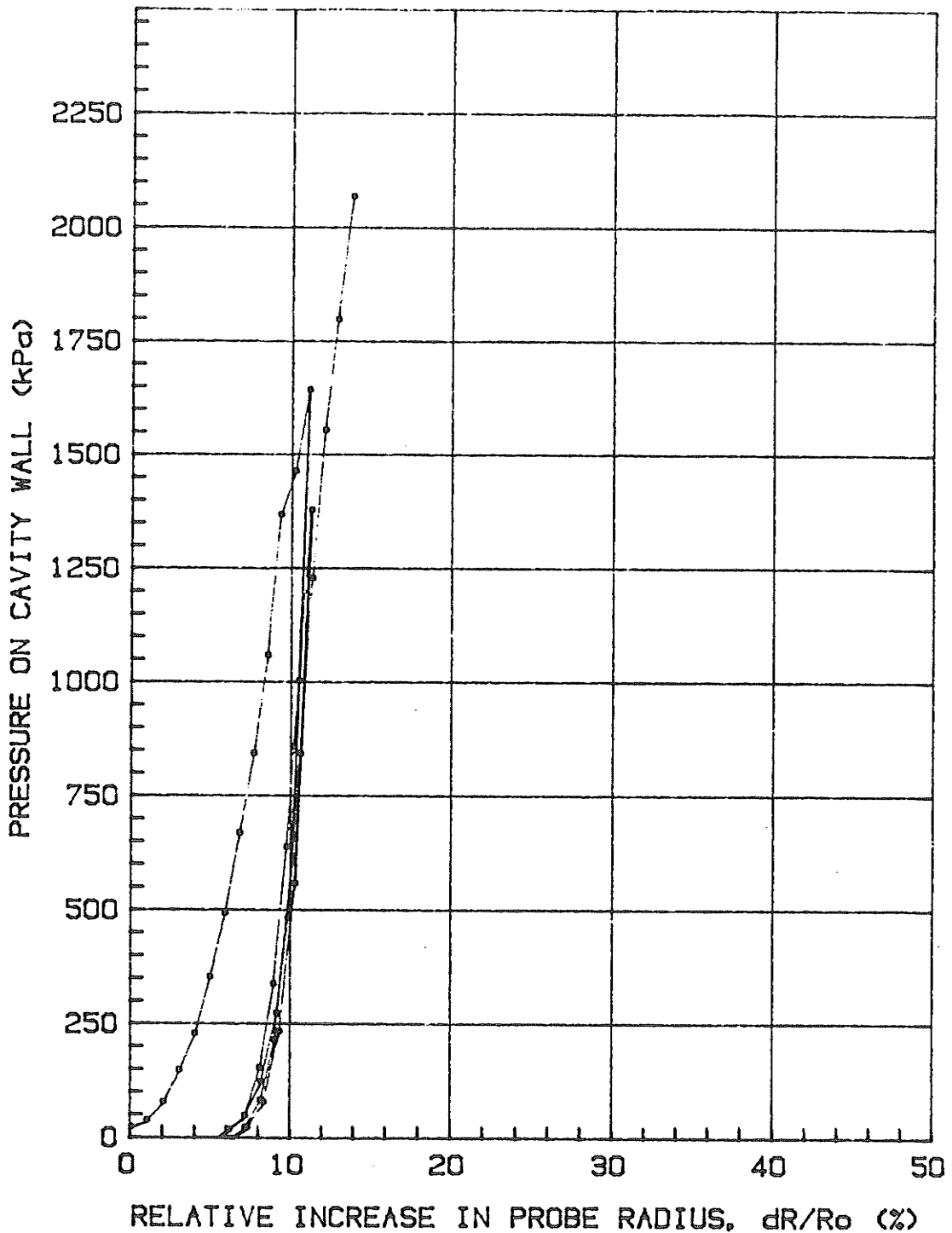
$P_0 = 6.3 \text{ kPa}$        $E_0 = 119476 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_1^* = \quad \quad \text{kPa}$        $E_0/P_1^* = \quad \quad$



T' BAY: OCT. 85: HOLE# 1: RW 12-30: STA. 5+204: 3m L: 0.6 m



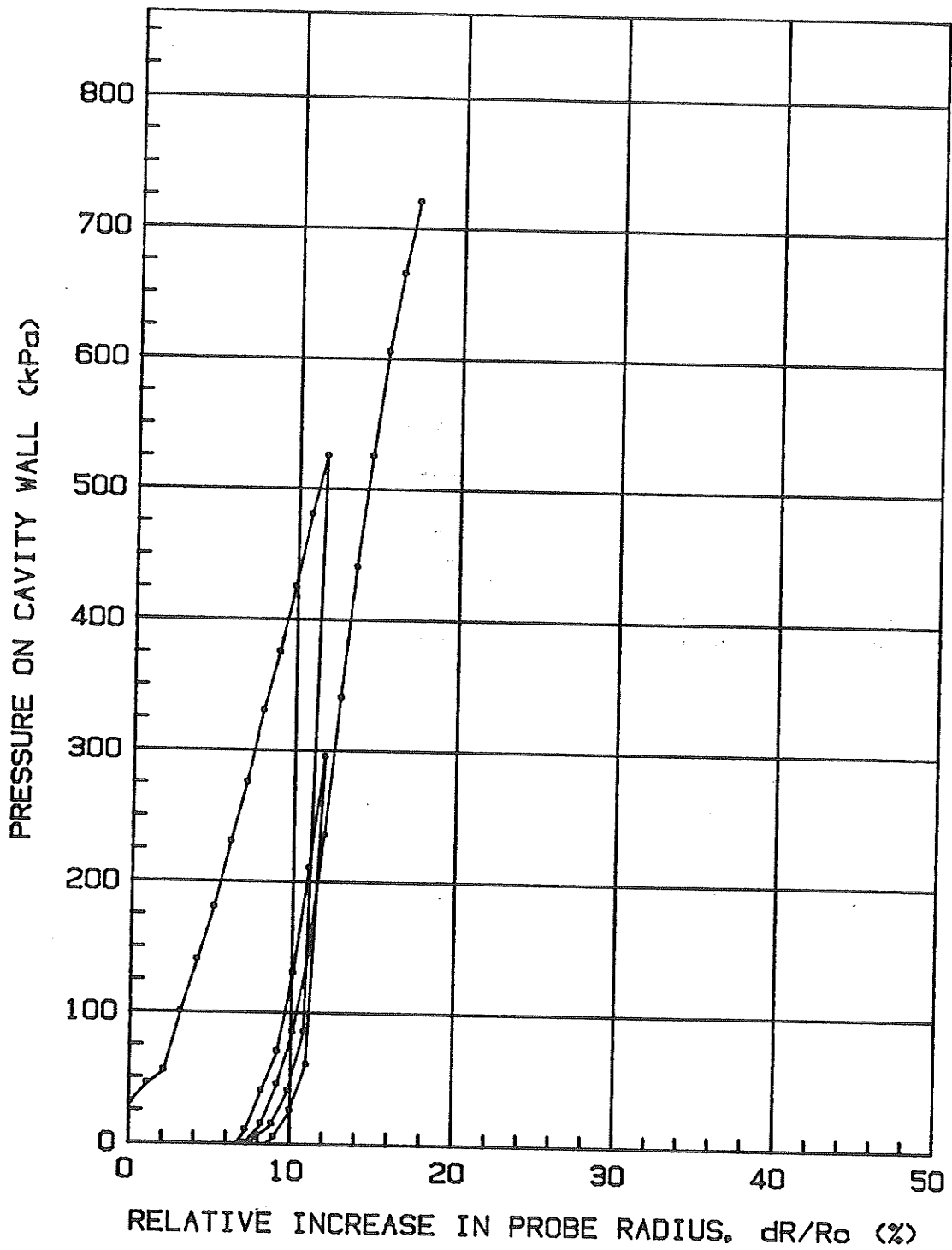
$P_o = 14.9 \text{ kPa}$        $E_o = 30530 \text{ kPa}$   
 $P_l = 2400 \text{ kPa}$        $E_r = 73457 \text{ kPa}$   
 $P_l^* = 2385.1 \text{ kPa}$      $E_o/P_l^* = 12.8$



T'BAY: OCT. 85: HOLE# 1: RW 12-30: STA. 5+204: 3mL: 1.5 m

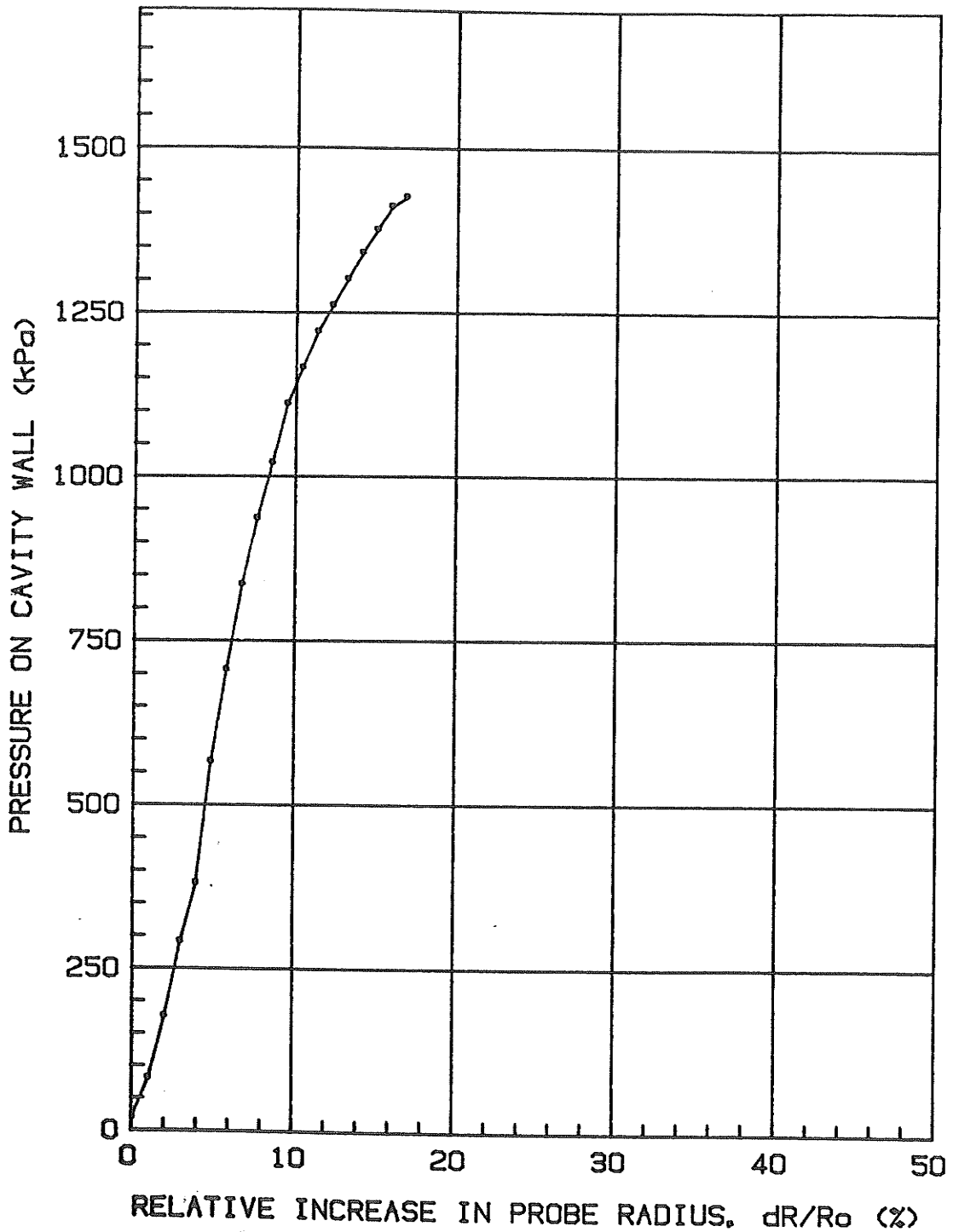
Po = 27 kPa  
P1 = 920 kPa  
P1\* = 893 kPa

Eo = 7472 kPa  
Er = 16458 kPa  
Eo/P1\* = 8.3



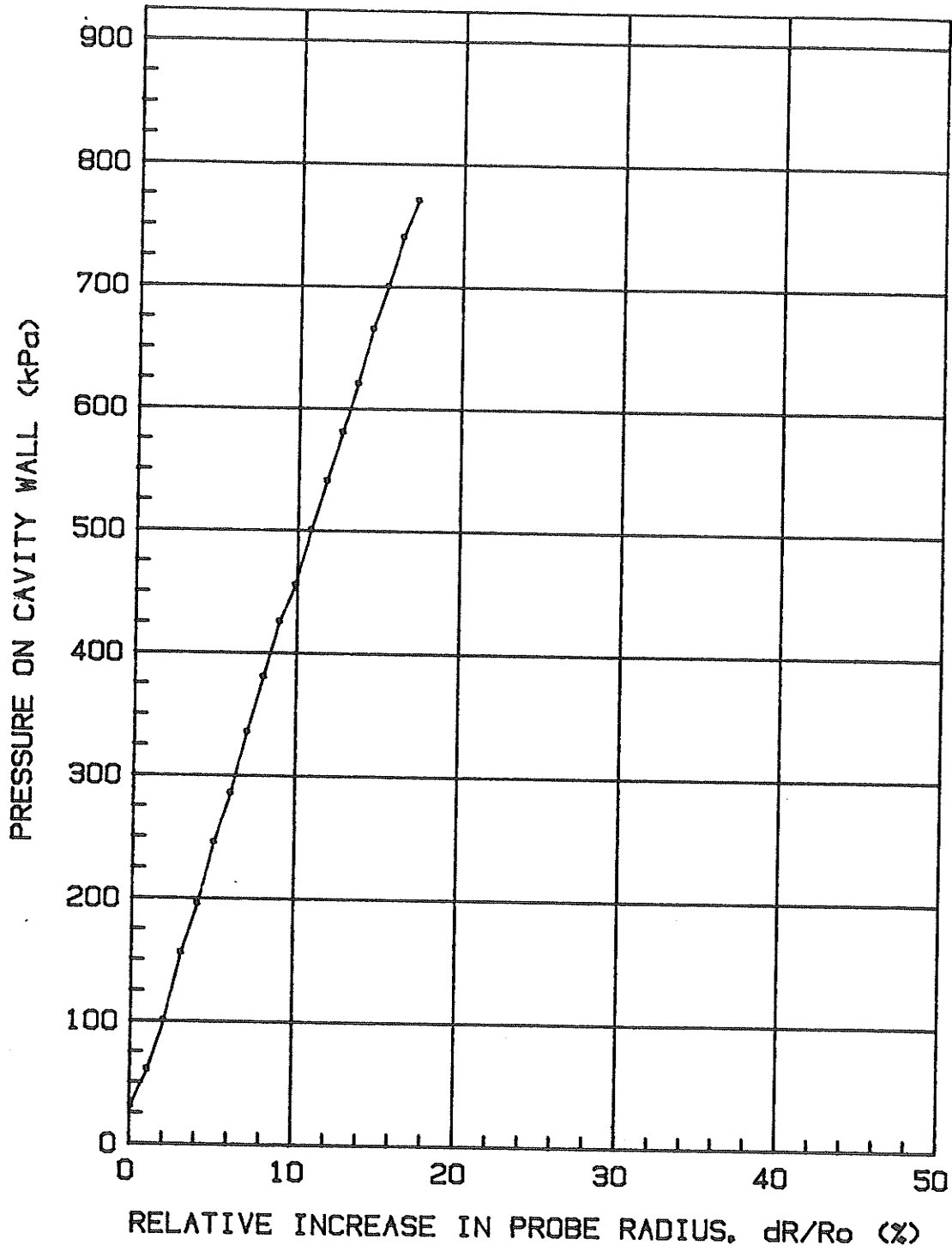
T' BAY: OCT. 85: HOLE# 1: RW 12-30: STA. 5+204: 3mL: 2.5 m

$P_0 = 14.9 \text{ kPa}$        $E_0 = 20462 \text{ kPa}$   
 $P_1 = 1420 \text{ kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_1^* = 1405.1 \text{ kPa}$      $E_0/P_1^* = 14.5$



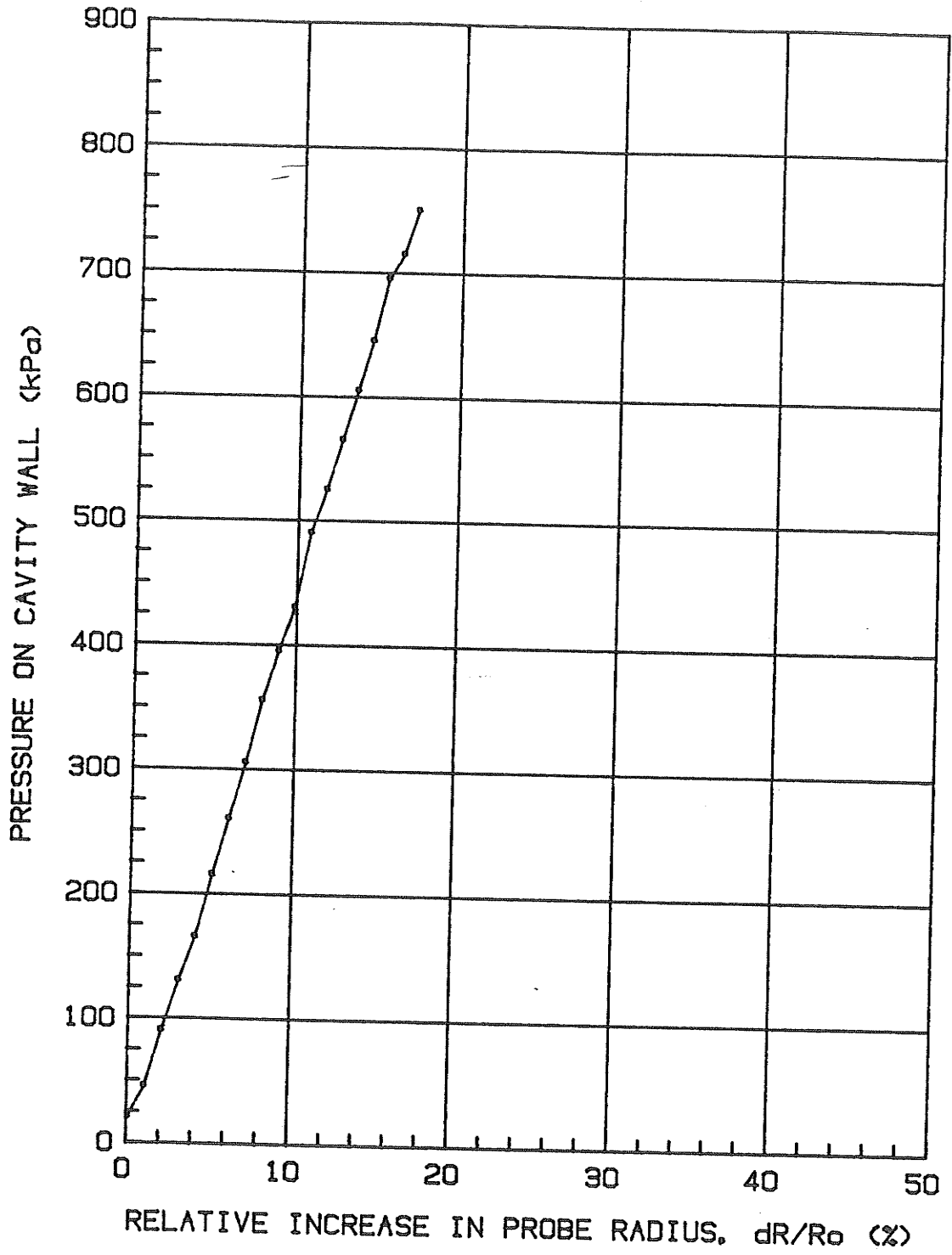
T'BAY: OCT. 85: HOLE# 2: RW 12-30: STA. 5+496: 3mR: 1.5 m

$P_o = 27 \text{ kPa}$        $E_o = 6257 \text{ kPa}$   
 $P_l = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{l*} = \quad \quad \text{kPa}$        $E_o/P_{l*} = \quad \quad \quad$



T'BAY: OCT. 85: HOLE# 2: RW 12-30: STA. 5+496: 3mR: 2.5 m

$P_o = 14.9 \text{ kPa}$        $E_o = 6843 \text{ kPa}$   
 $P_l = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{l*} = \quad \quad \text{kPa}$        $E_o/P_{l*} = \quad \quad \quad$



T' BAY: OCT. 85: HOLE# 3: RW 12-30: STA. 6+067: 3mL: 1.5 m

Po = 27 kPa

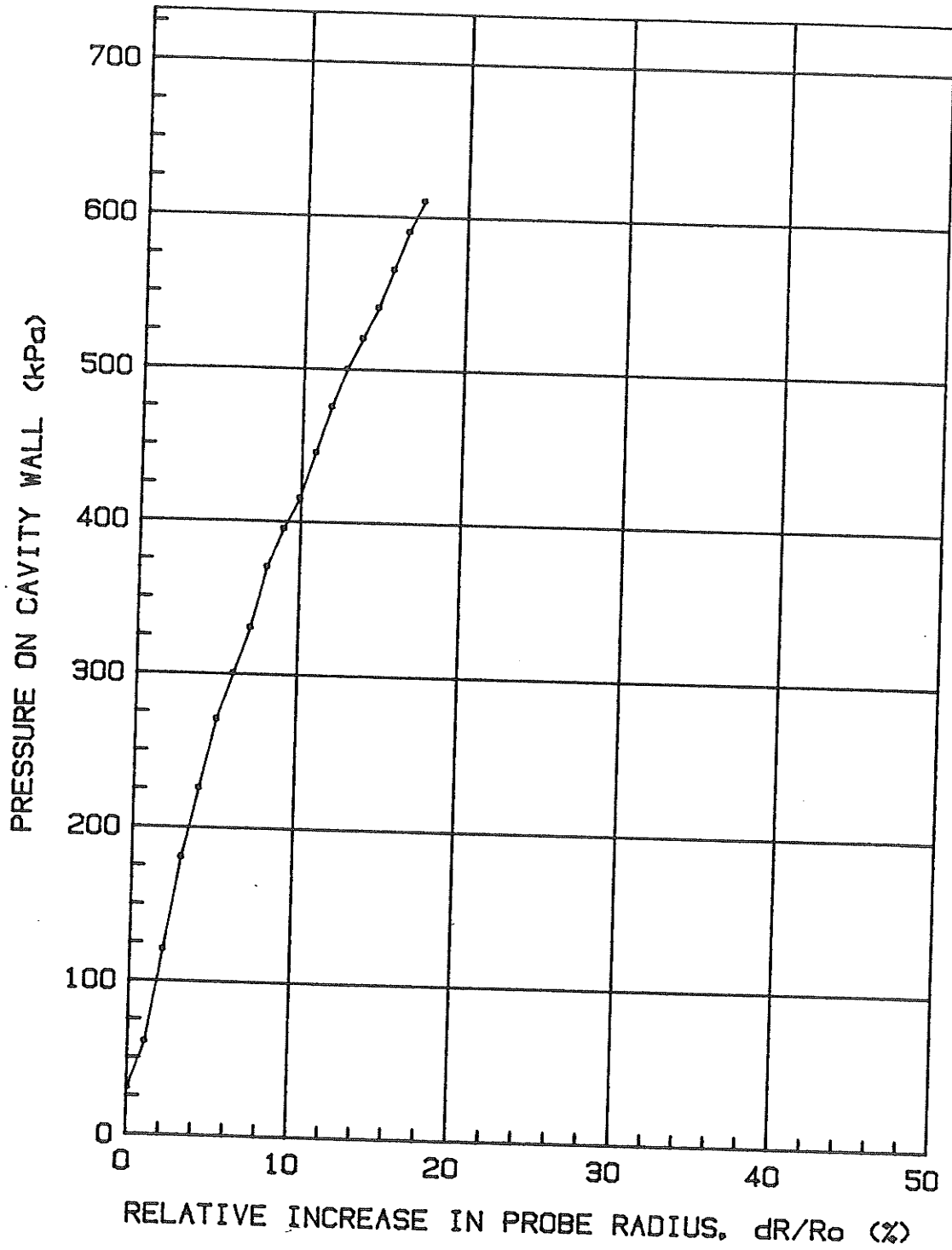
Eo = 7508 kPa

P1 =            kPa

Er =            kPa

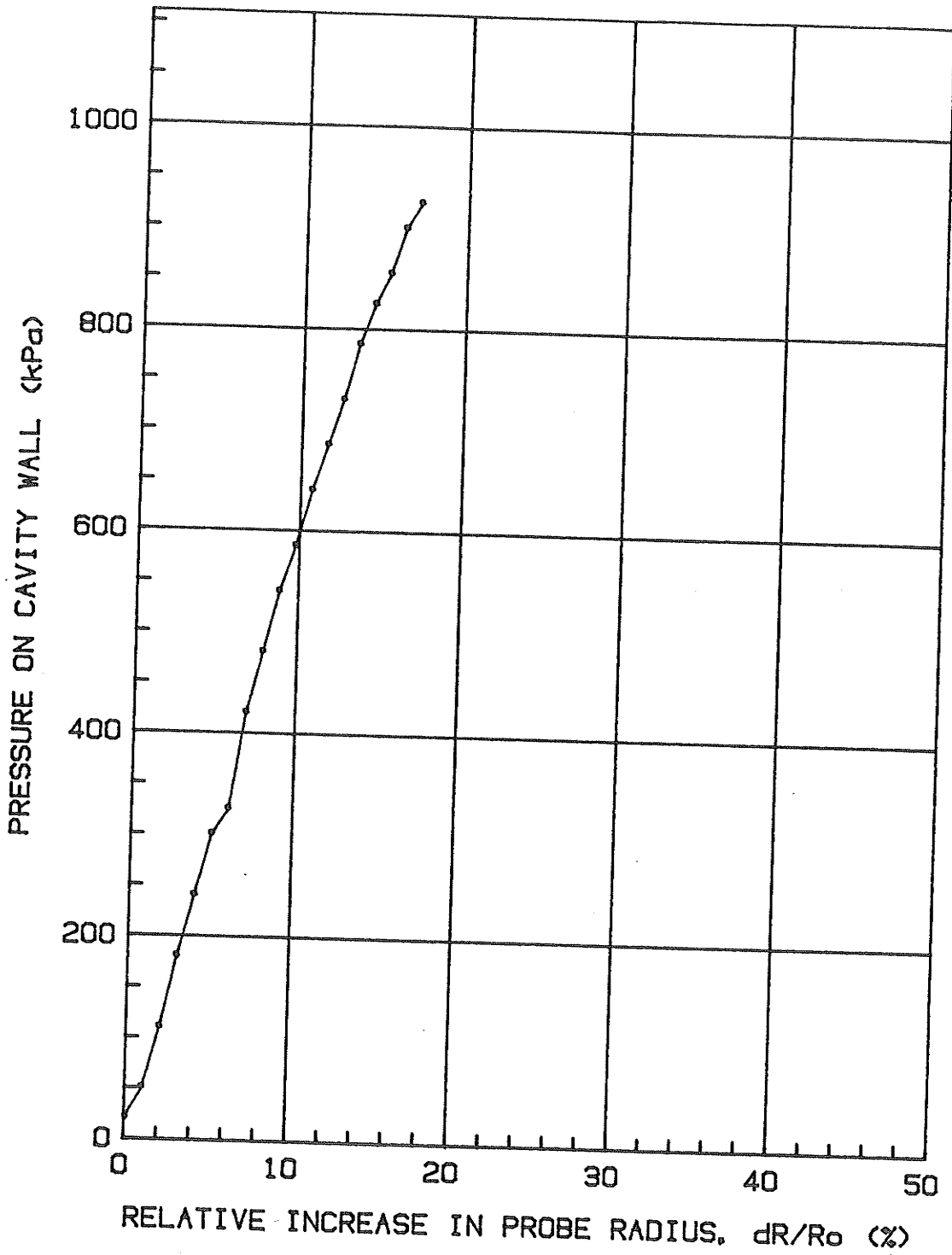
P1\* =           kPa

Eo/P1\* =



T' BAY: OCT. 85: HOLE# 3: RW 12-30: STA. 6+067: 3mR: 2.50 m

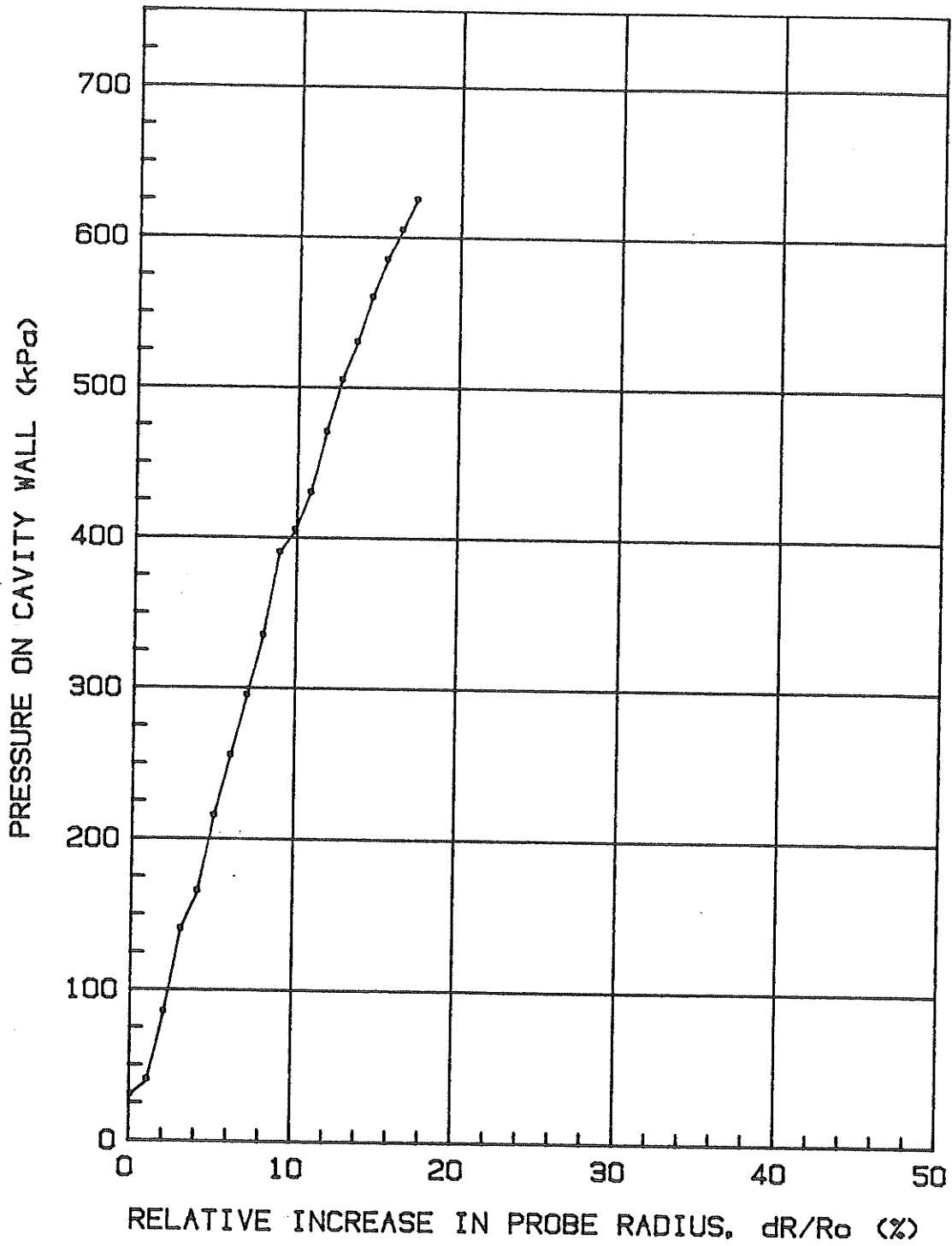
$P_o = 14.9 \text{ kPa}$        $E_o = 8893 \text{ kPa}$   
 $P_l = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{l^*} = \quad \quad \text{kPa}$        $E_o/P_{l^*} = \quad \quad \quad$



T' BAY: OCT. 85: HOLE# 4: RW 12-30: STA. 6+298: 3mR: 1.50 m

Po = 27 kPa  
P1 = 740 kPa  
P1\* = 713 kPa

Eo = 6214 kPa  
Er =            kPa  
Eo/P1\* = 8.7

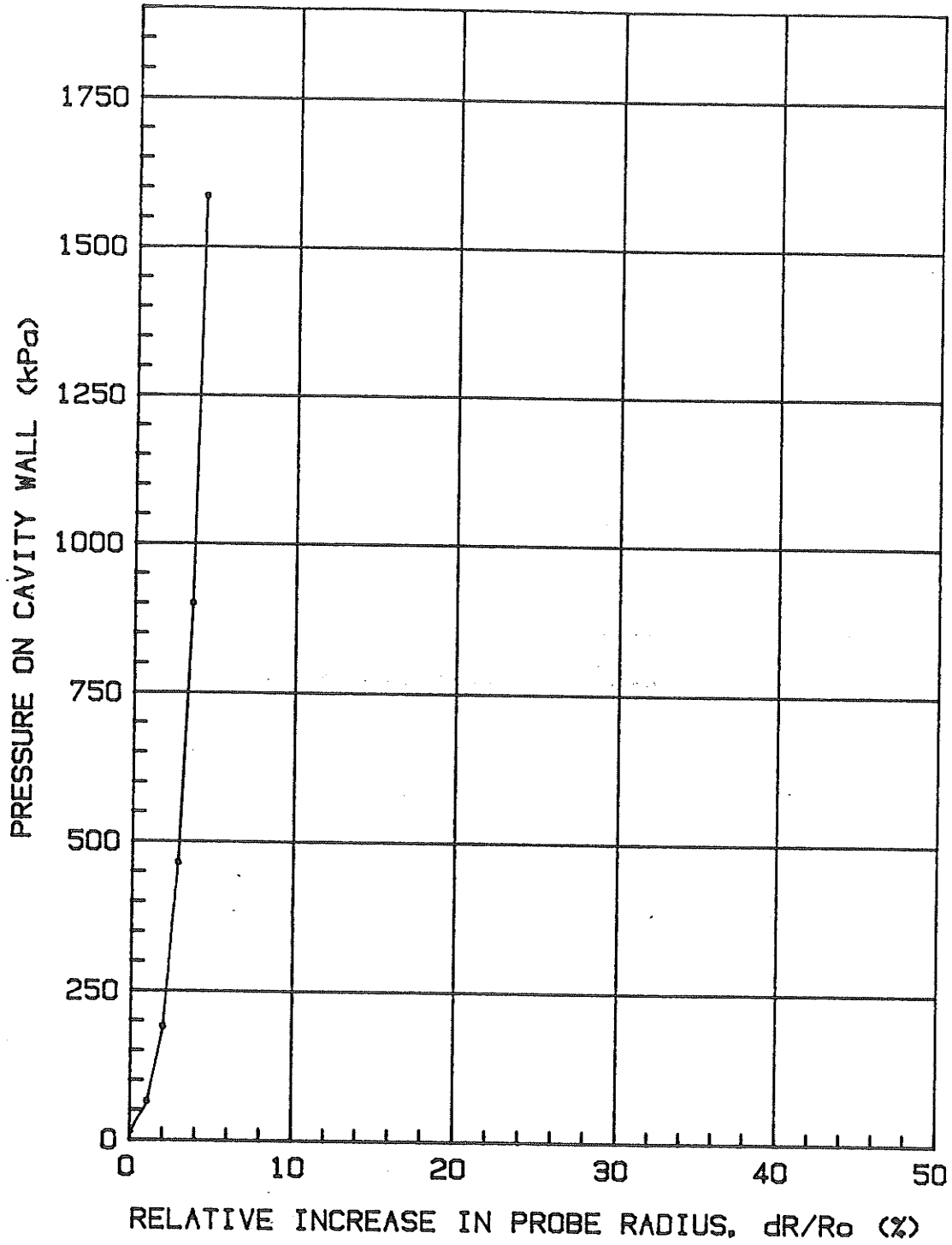


T' BAY: OCT. 85: HOLE# 4: RW 12-30: STA. 6+298: 3mR: 2.50 m



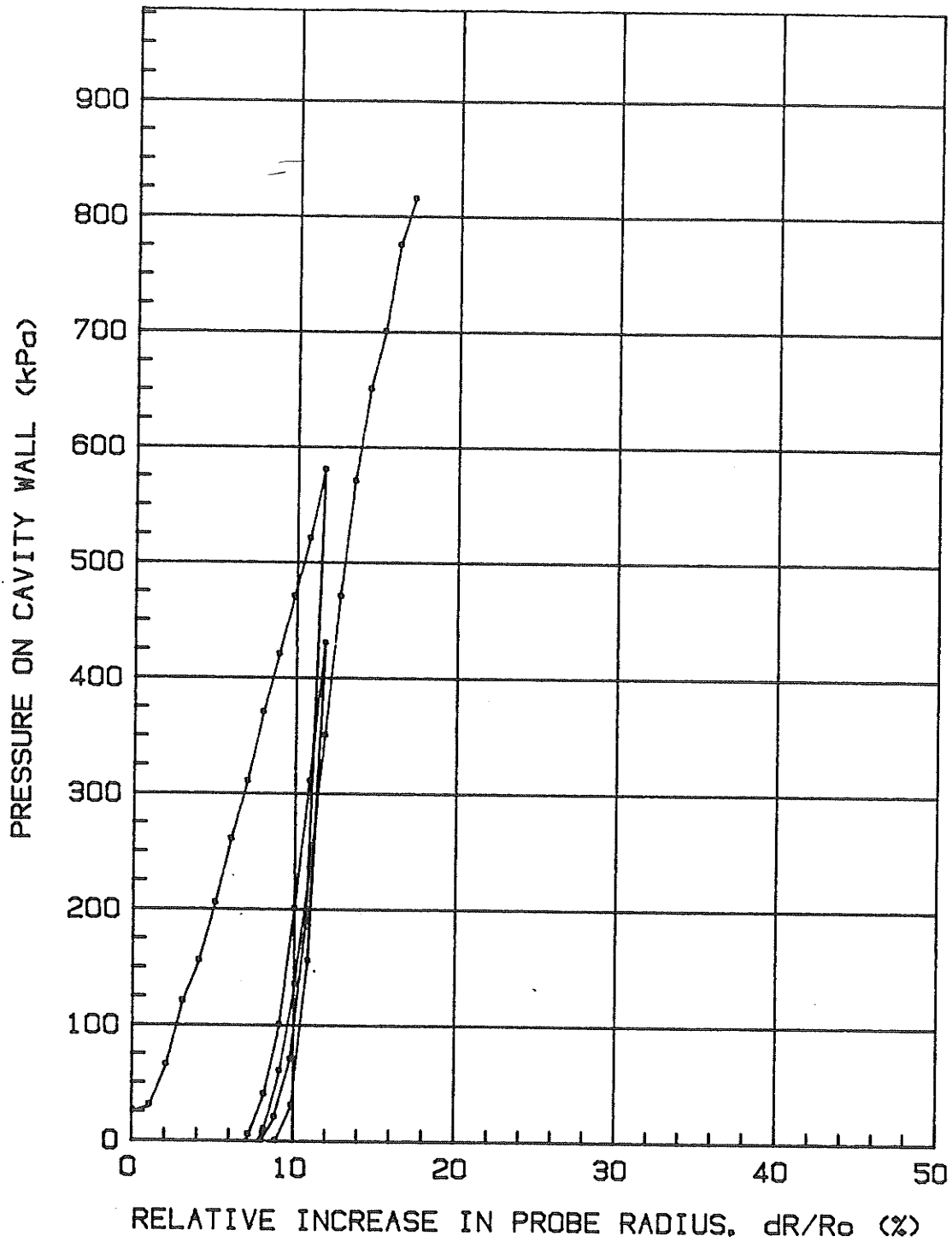
Po = 7.9 kPa  
P1 =        kPa  
P1\* =        kPa

Eo = 158421 kPa  
Er =        kPa  
Eo/P1\* =       



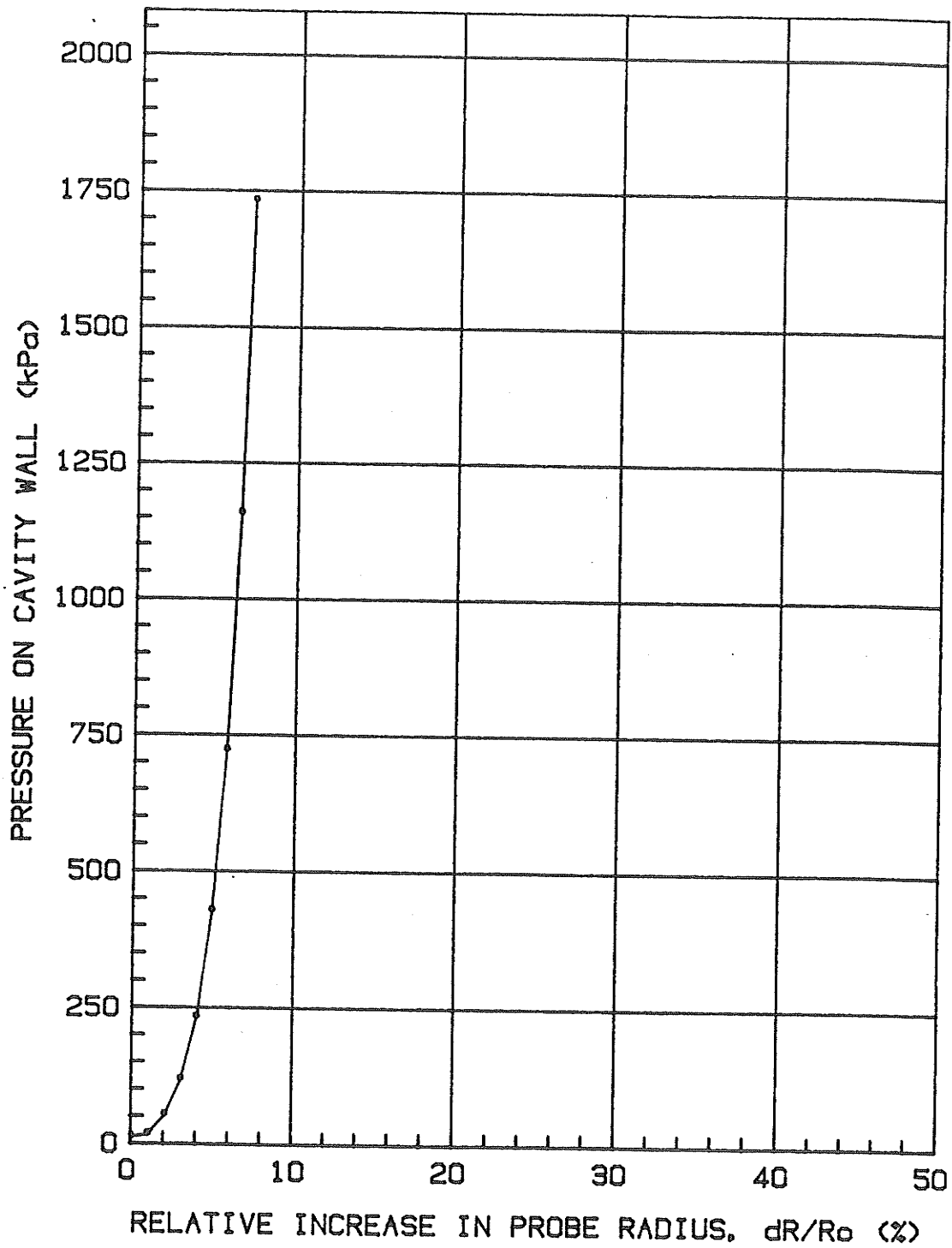
T' BAY, OCT. 85, HOLE# 7, TAXI A, STA. 10+340, 3mR, 0.75 m

$P_o = 19.8 \text{ kPa}$        $E_o = 8001 \text{ kPa}$   
 $P_l = 980 \text{ kPa}$        $E_r = 18549 \text{ kPa}$   
 $P_l^* = 960.2 \text{ kPa}$        $E_o/P_l^* = 8.3$



T' BAY: OCT. 85: HOLE# 7: TAXI A: STA. 10+340: 3mR: 2.0 m

$P_0 = 7.9 \text{ kPa}$        $E_0 = 102868 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad \quad$



T' BAY: OCT. 85: HOLE# 8: TAXI A: STA. 10+730: 3mL: 0.75 m

Po = 19.8 kPa

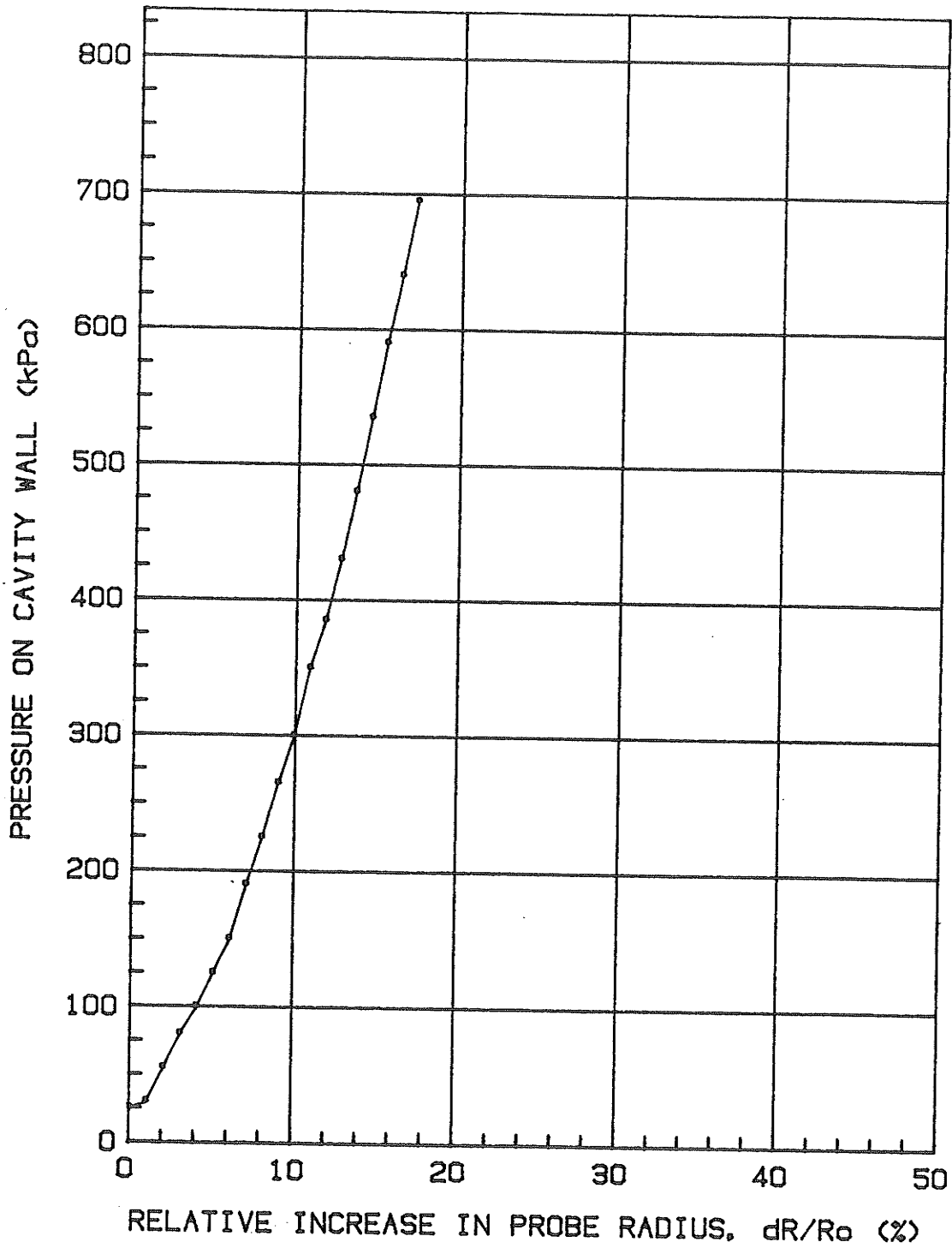
Eo = 8729 kPa

P1 = kPa

Er = kPa

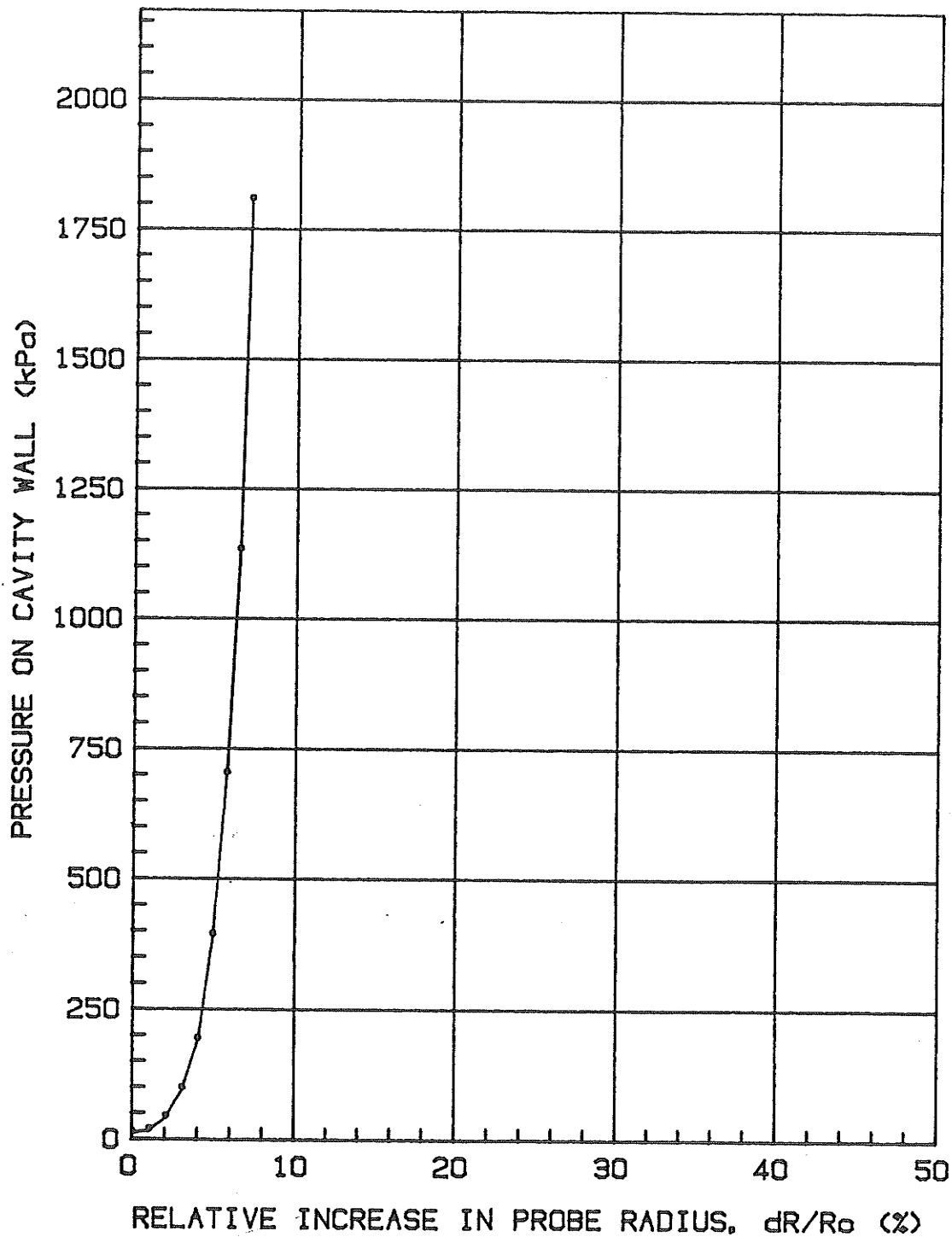
P1\* = kPa

Eo/P1\* =



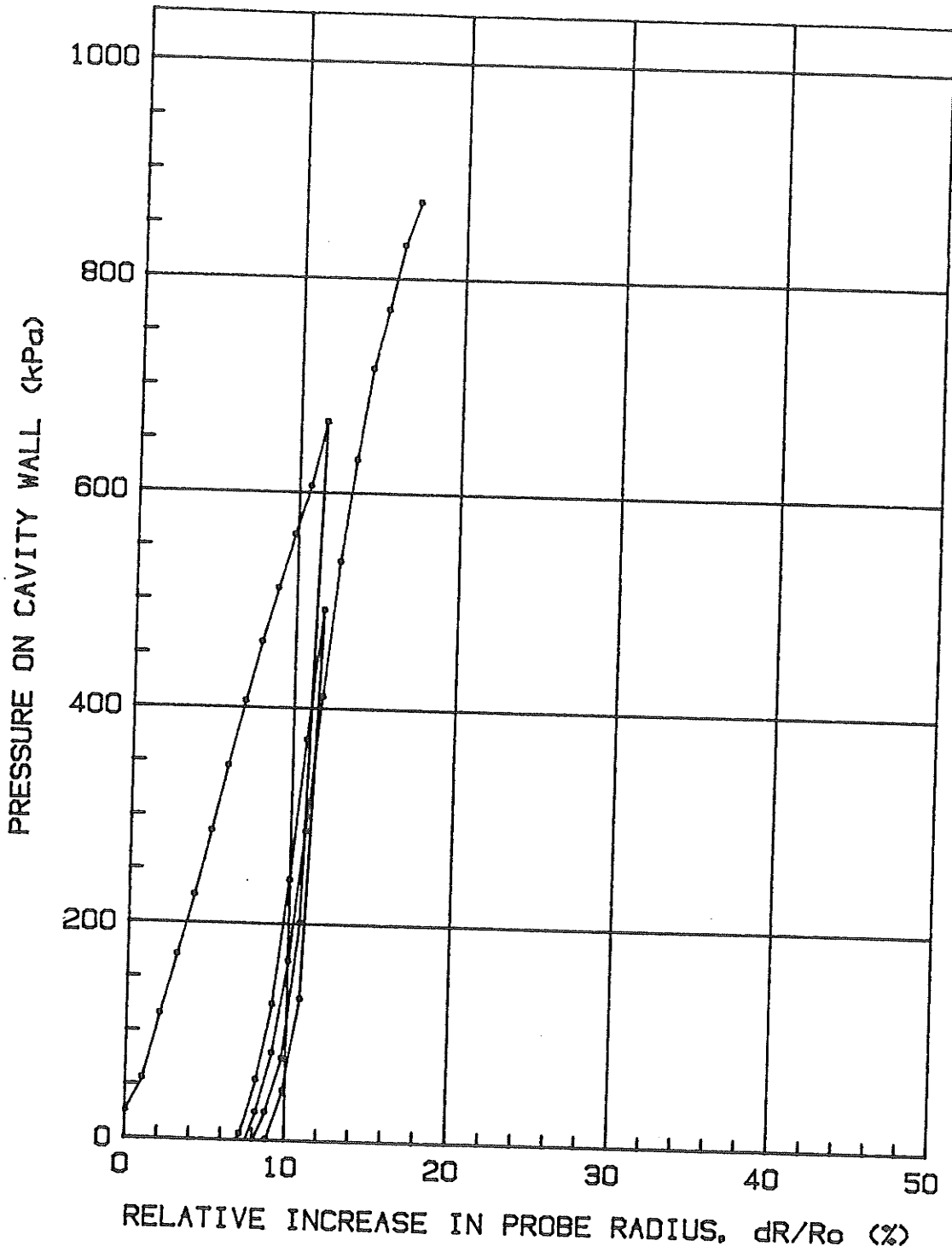
T' BAY: OCT. 85: HOLE# 8: TAXI A: STA. 10+730: 3mL: 2.0 m

$P_0 = 7.9 \text{ kPa}$        $E_0 = 117347 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_1^* = \quad \quad \text{kPa}$        $E_0/P_1^* =$



T' BAY: OCT. 85: HOLE# 9: TAXI D: STA. 10+495: 3mR: 0.75 m

$P_o = 19.8 \text{ kPa}$        $E_o = 8147 \text{ kPa}$   
 $P_1 = 1030 \text{ kPa}$        $E_r = 20632 \text{ kPa}$   
 $P_{1*} = 1010.2 \text{ kPa}$        $E_o/P_{1*} = 8$



T' BAY: OCT. 85: HOLE# 9: TAXI D: STA. 10+495: 3mR: 2.0 m

Po = 6.3 kPa

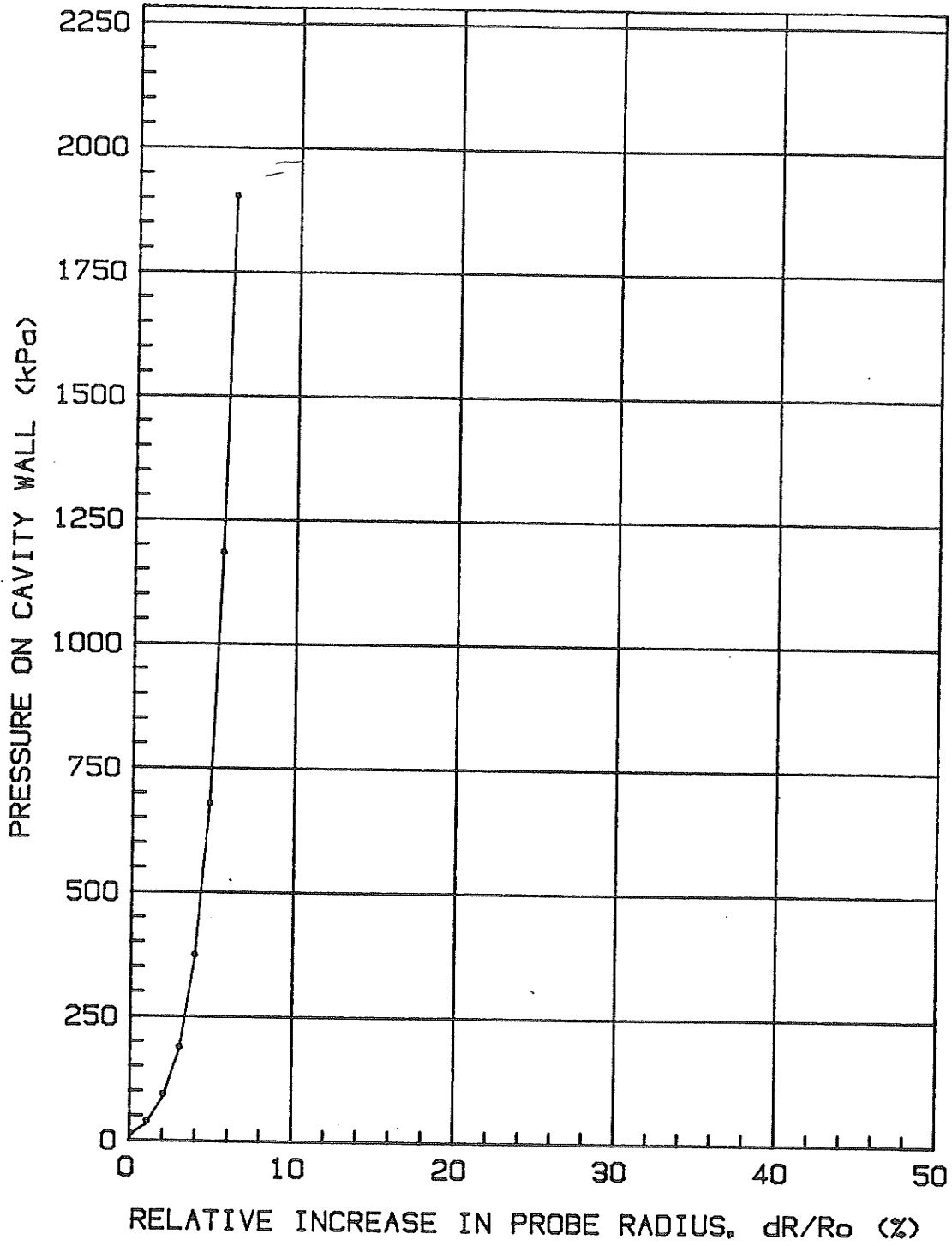
Eo = 177985 kPa

P1 = kPa

Er = kPa

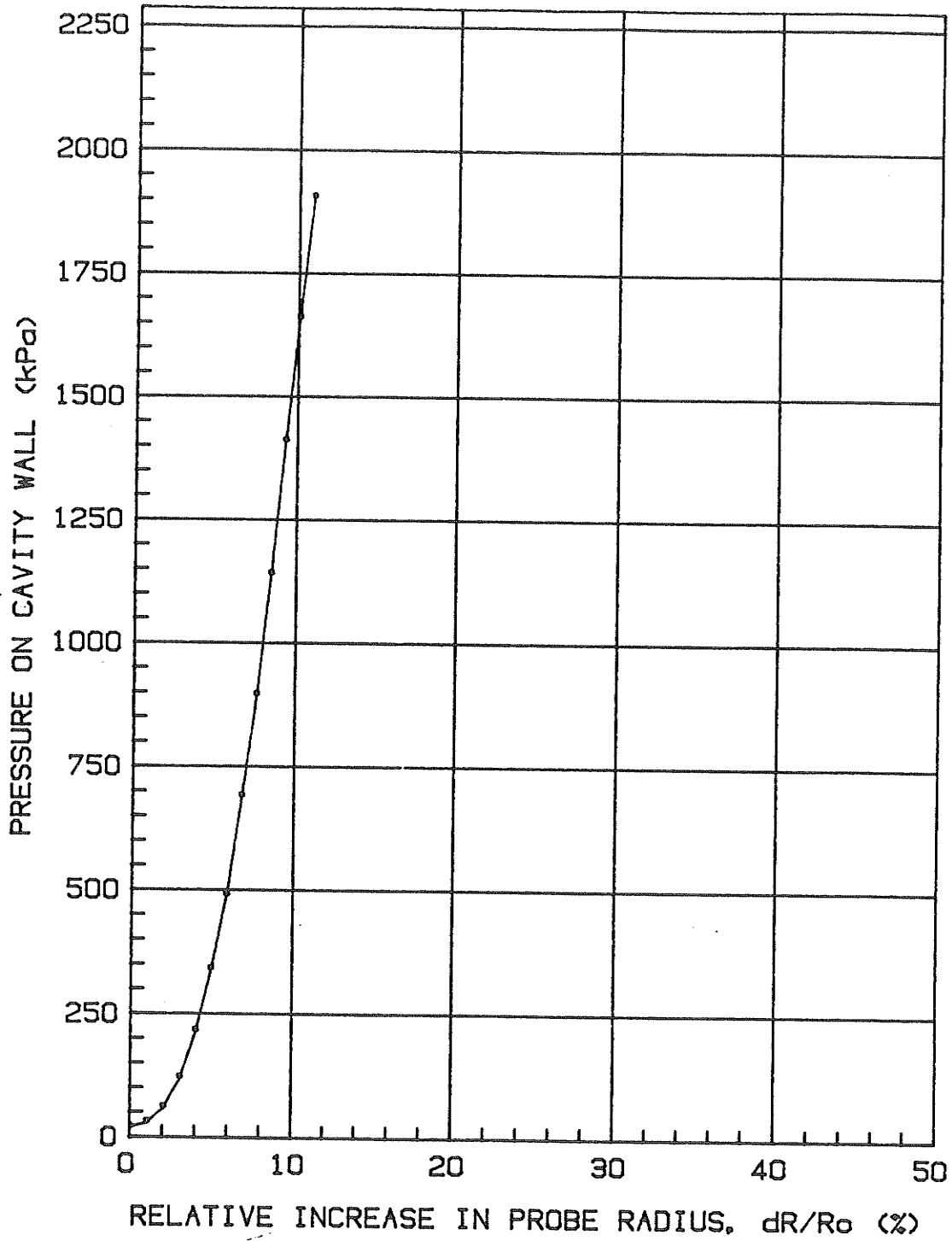
P1\* = kPa

Eo/P1\* =



T' BAY: OCT. 85: HOLE# 10: RW 12-30: STA. 5+100: 3mR: 0.6 m

$P_0 = 14.9 \text{ kPa}$        $E_0 = 44140 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_1^* = \quad \quad \text{kPa}$        $E_0/P_1^* = \quad \quad$

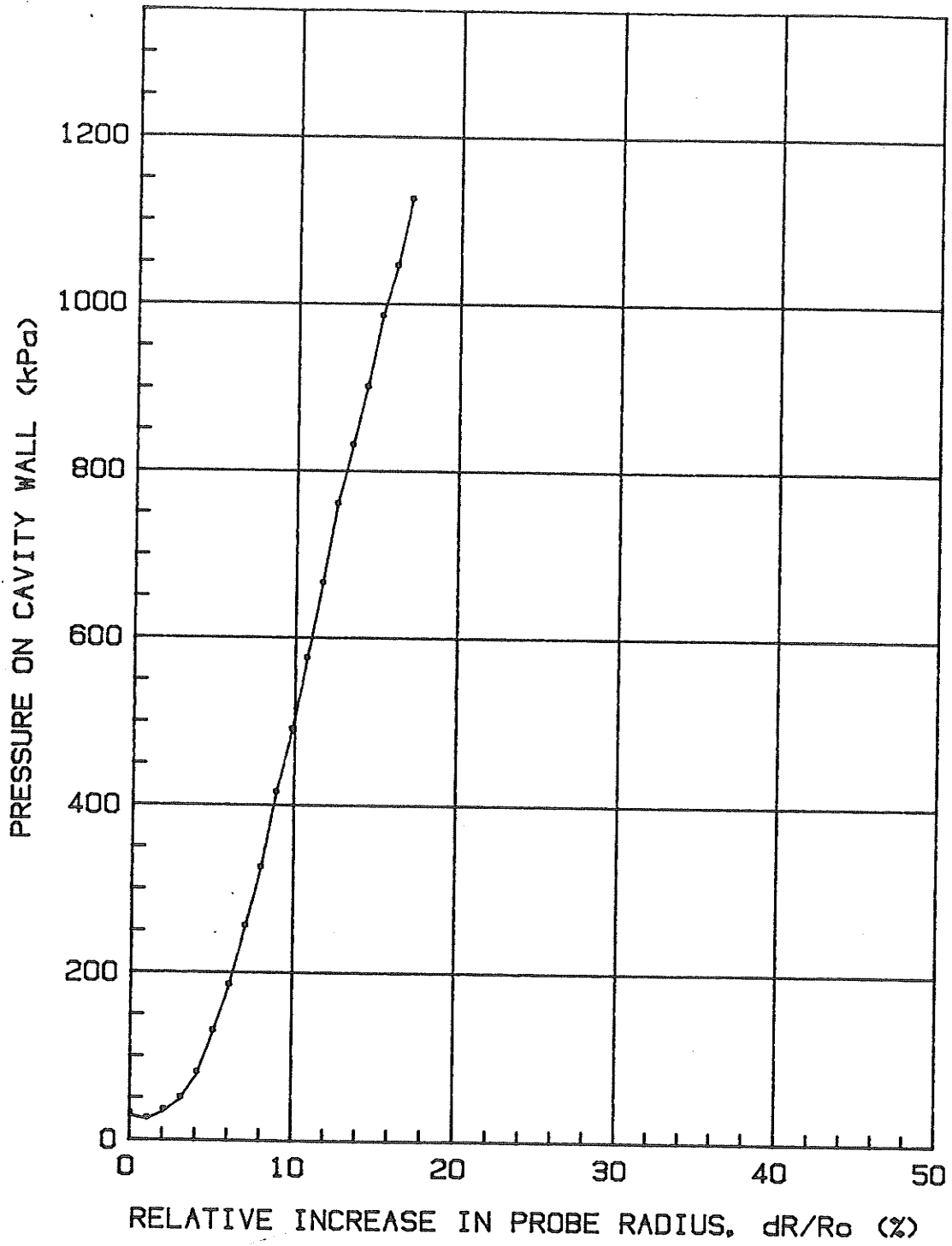


T' BAY: OCT. 85: HOLE# 10: RW 12-30: STA. 5+100: 3mR: 1.5 m



Po = 27 kPa  
P1 =            kPa  
P1\* =           kPa

Eo = 13166 kPa  
Er =            kPa  
Eo/P1\* =           



T' BAY: OCT. 85: HOLE# 10: RW 12-30: STA. 5+100: 3mR: 2.5 m

Po = 14.9 kPa

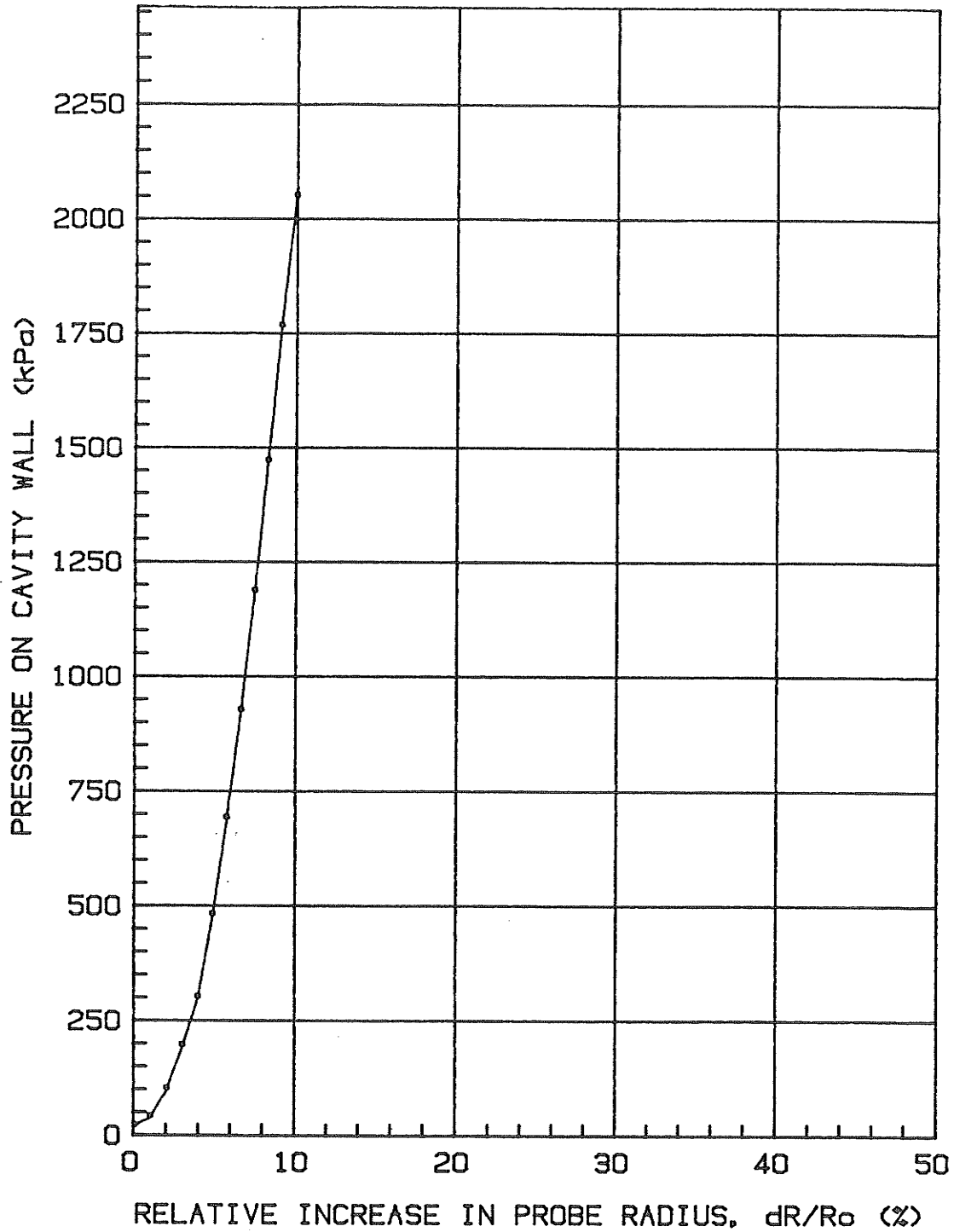
Eo = 48110 kPa

P1 = kPa

Er = kPa

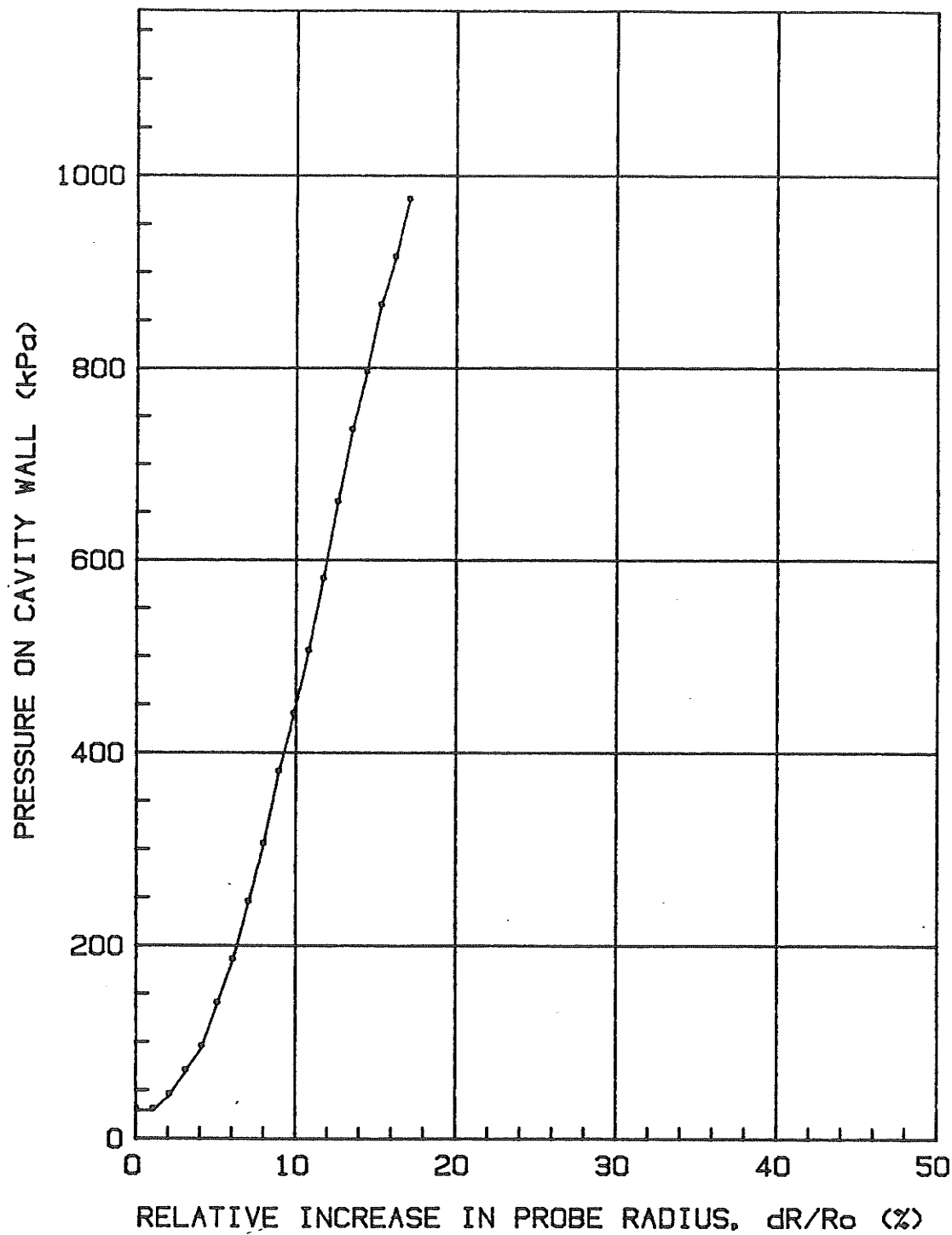
P1\* = kPa

Eo/P1\* =



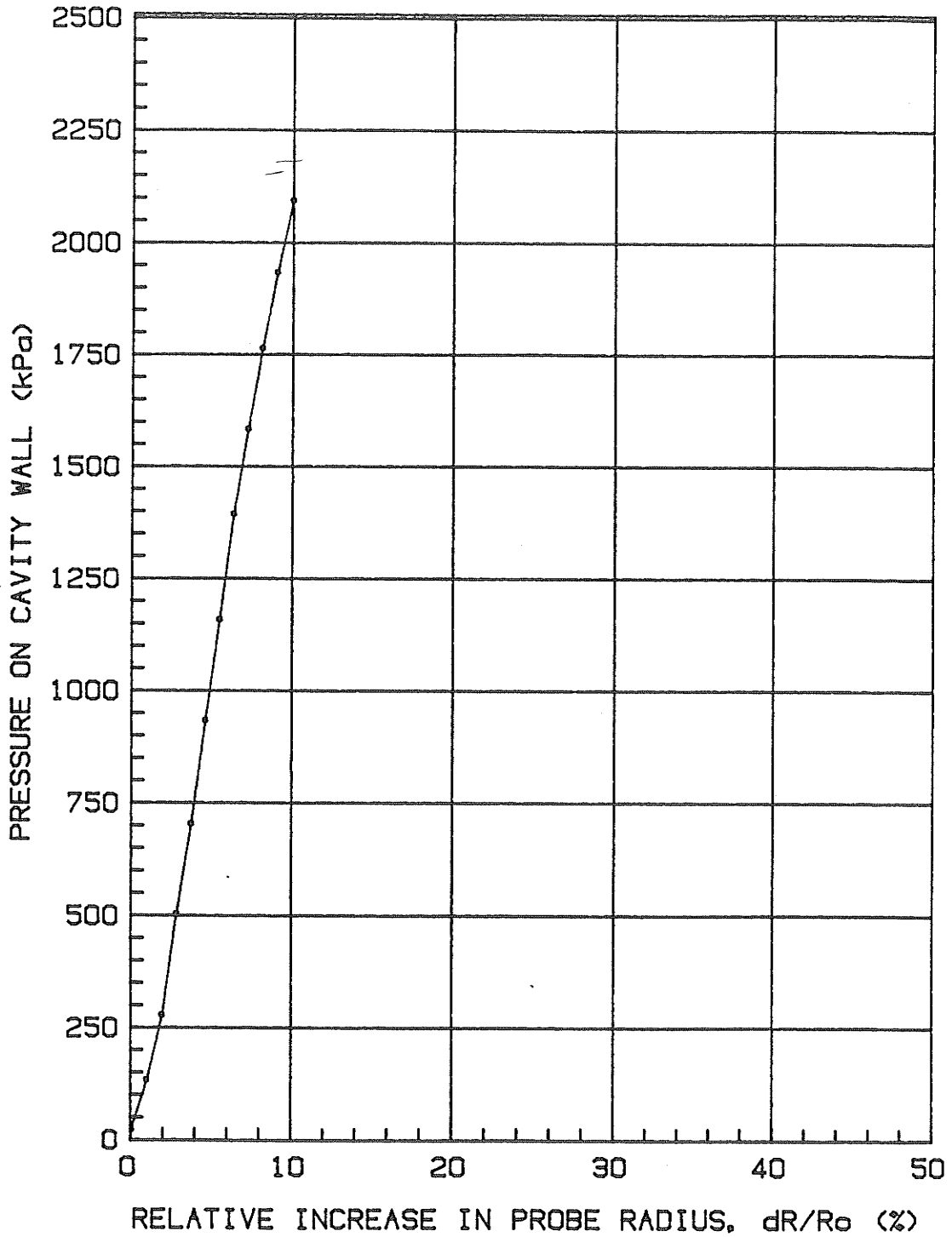
T' BAY: OCT. 85: HOLE# 11: RW 12-30: STA. 5+298: 3mR: 1.5 m

$P_o = 27 \text{ kPa}$                        $E_o = 10991 \text{ kPa}$   
 $P_1 = \quad \quad \quad \text{kPa}$                  $E_r = \quad \quad \quad \text{kPa}$   
 $P_1^* = \quad \quad \quad \text{kPa}$                  $E_o/P_1^* =$



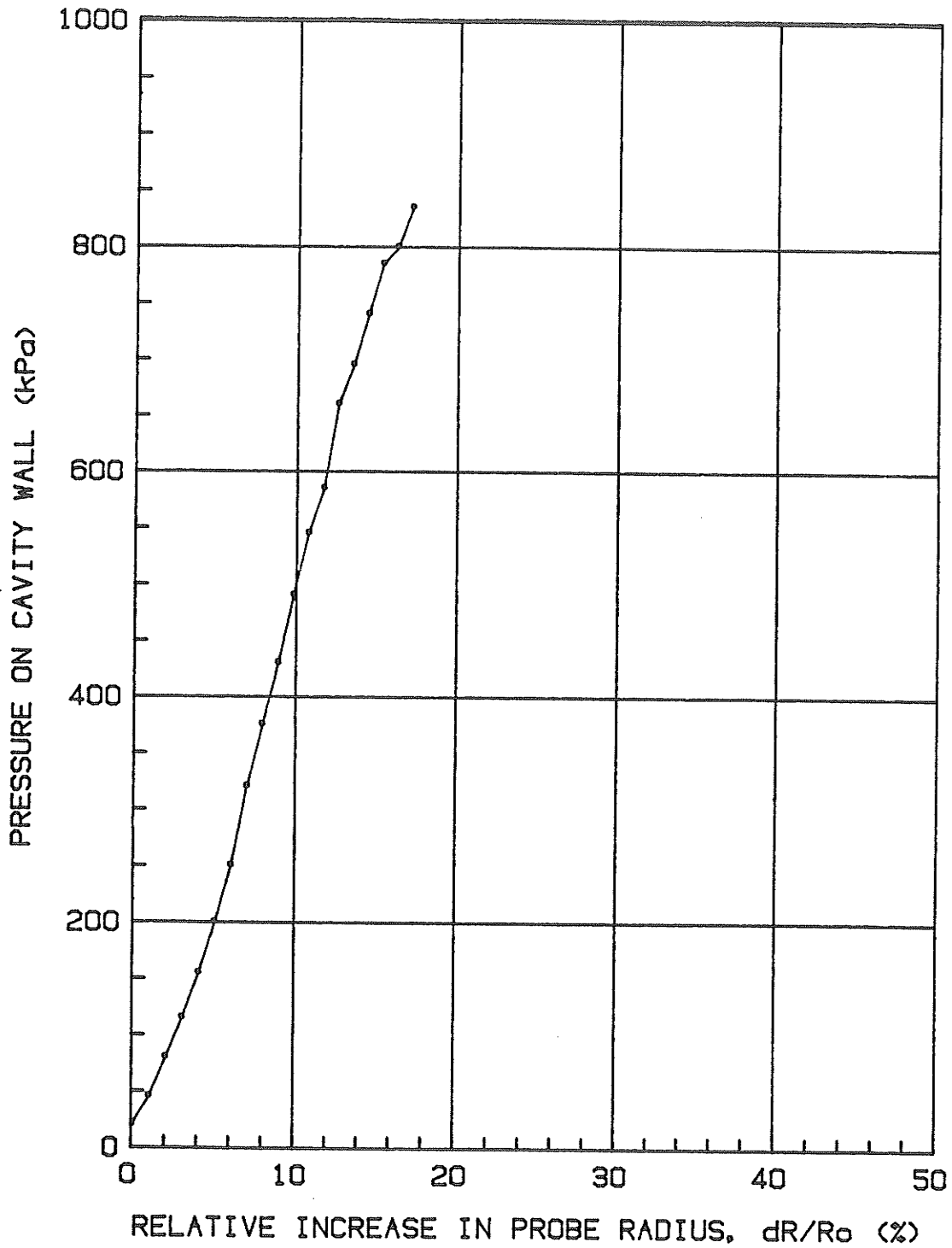
T'BAY: OCT. 85: HOLE# 11: RW 12-30: STA. 5+298: 3mR: 2.5 r

$P_o = 14.9 \text{ kPa}$        $E_o = 34358 \text{ kPa}$   
 $P_1 = 2500 \text{ kPa}$        $E_r = \text{            kPa}$   
 $P_1^* = 2485.1 \text{ kPa}$      $E_o/P_1^* = 13.8$



T' BAY: OCT. 85: HOLE# 12: RW 12-30: STA. 5+395: 3mL: 1.5 r

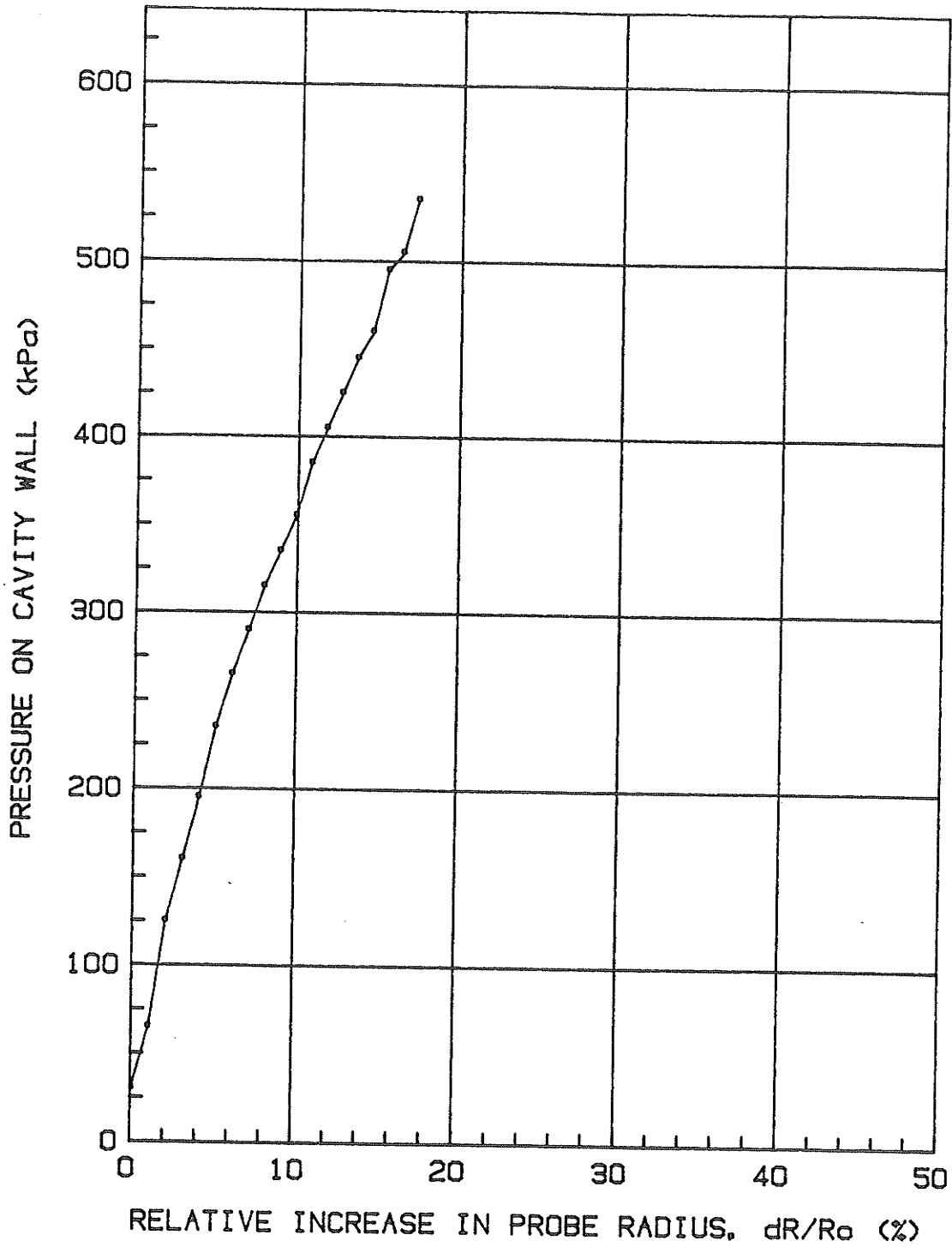
$P_0 = 14.9 \text{ kPa}$        $E_0 = 8363 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_1^* = \quad \quad \text{kPa}$        $E_0/P_1^* = \quad \quad$



T' BAY: OCT. 85: HOLE# 13: RW 12-30: STA. 5+597.5: 3mL: 1.5

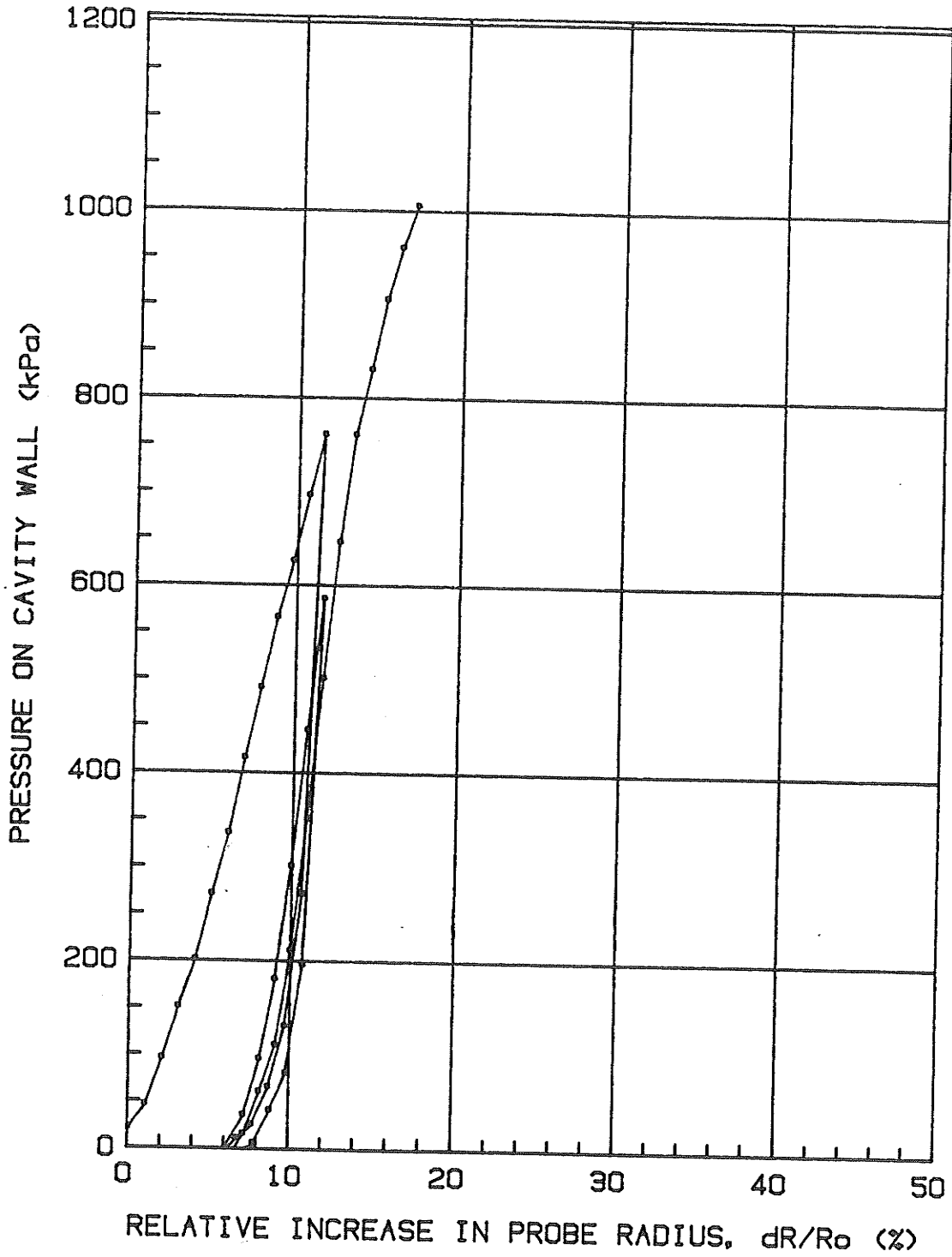
Po = 27 kPa  
P1 = 520 kPa  
P1\* = 493 kPa

Eo = 4857 kPa  
Er = kPa  
Eo/P1\* = 9.8



T'BAY: OCT. 85: HOLE# 13: RW 12-30: STA. 5+597.5: 3mL: 2.5

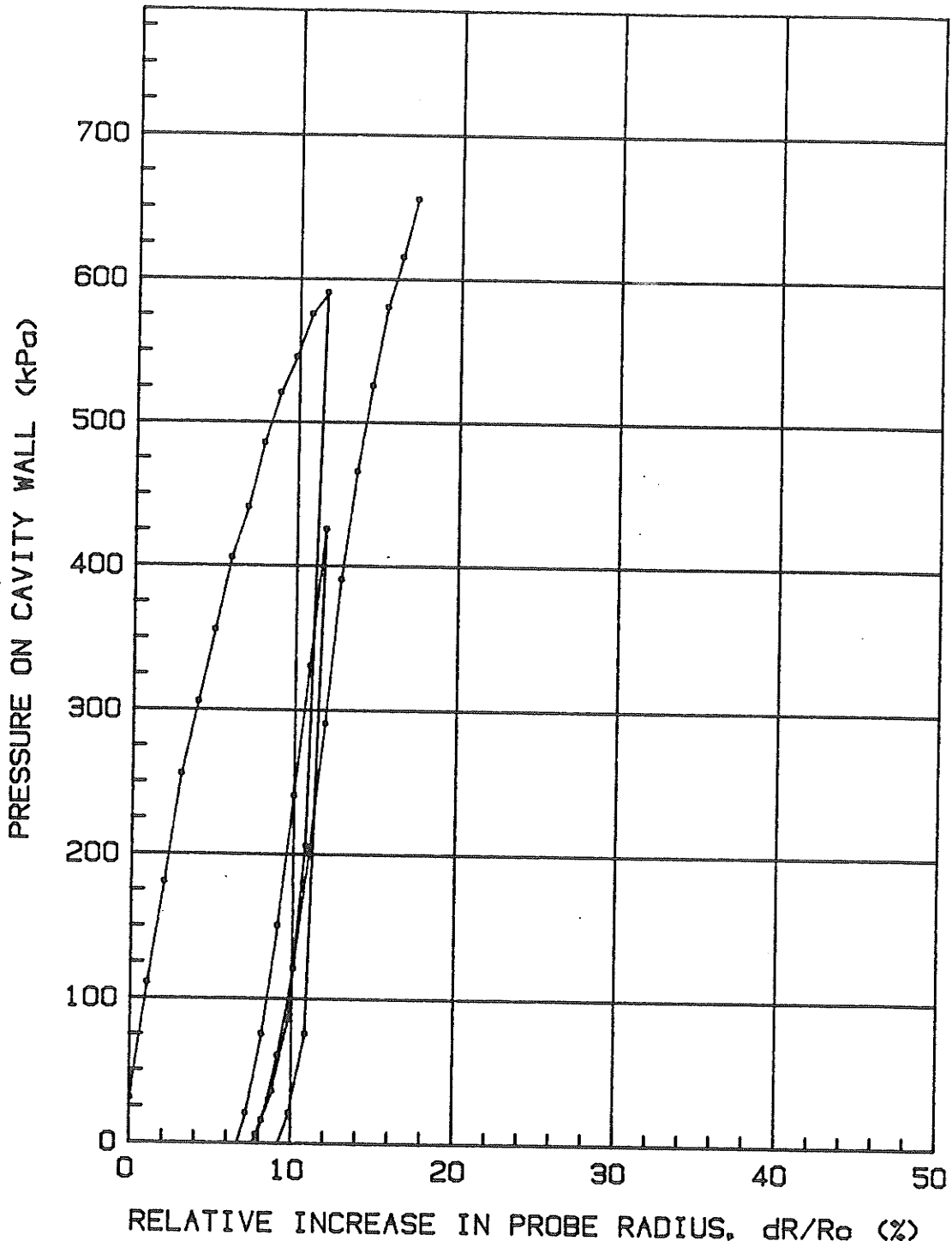
$P_o = 14.9 \text{ kPa}$        $E_o = 10730 \text{ kPa}$   
 $P_l = 1200 \text{ kPa}$        $E_r = 24417 \text{ kPa}$   
 $P_{l^*} = 1185.1 \text{ kPa}$      $E_o/P_{l^*} = 9$



T' BAY: OCT. 85: HOLE# 14: RW 12-30: STA. 5+654: 3mR: 1.5 m

Po = 27 kPa  
P1 = 740 kPa  
P1\* = 713 kPa

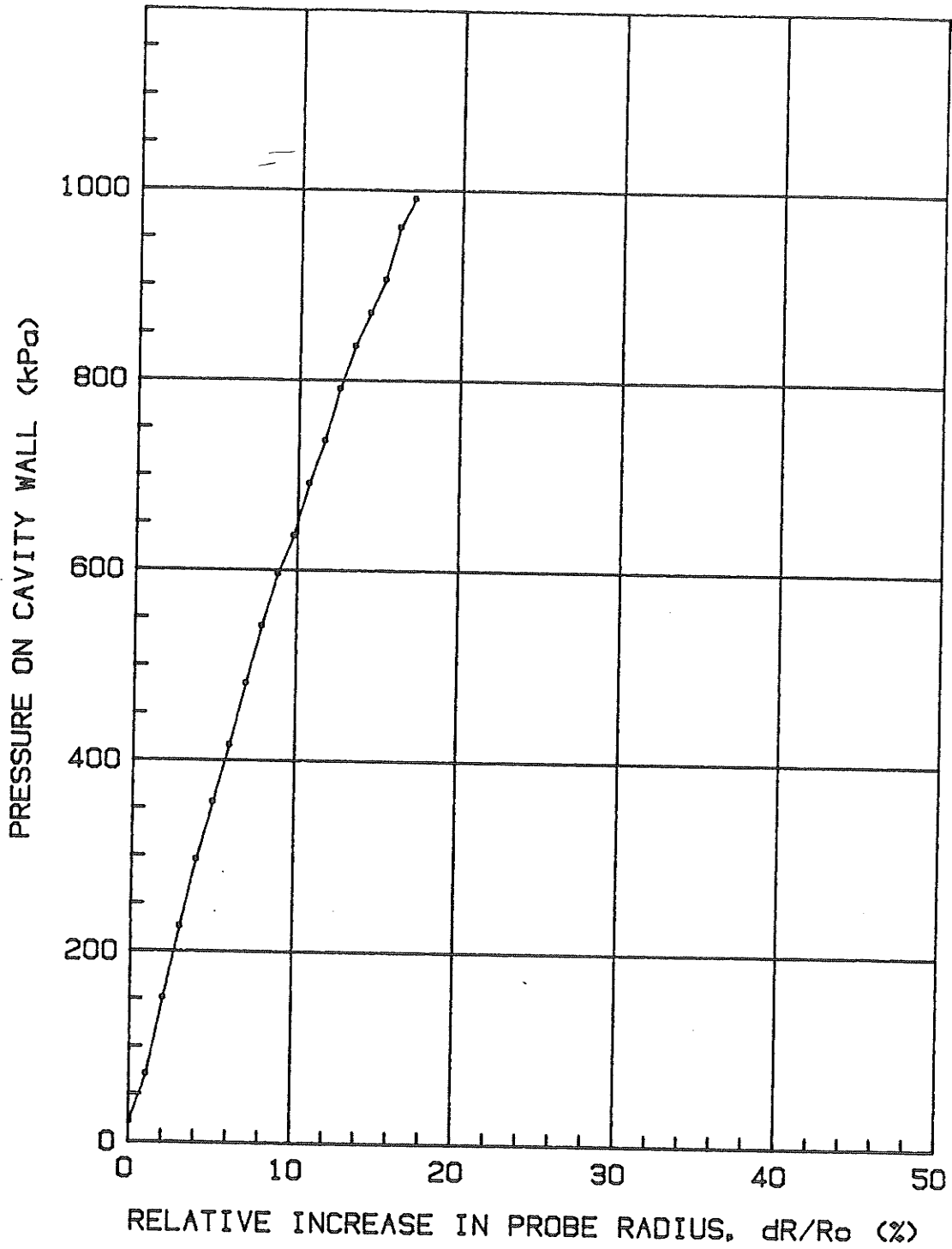
Eo = 9374 kPa  
Er = 14751 kPa  
Eo/P1\* = 13.1



T' BAY: OCT. 85: HOLE# 14: RW 12-30: STA. 5+654: 3mR: 2.5 m



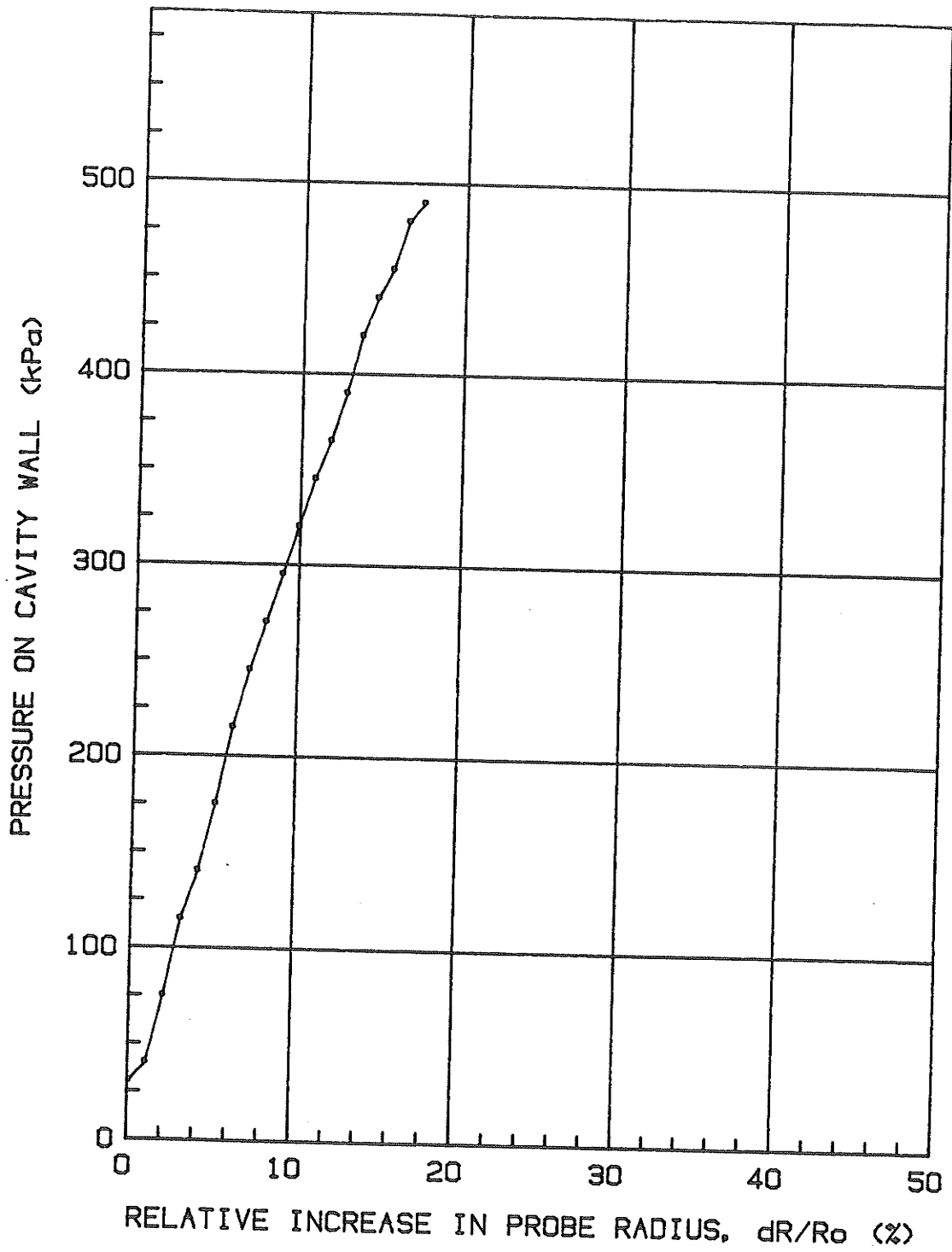
$P_o = 14.9 \text{ kPa}$        $E_o = 9342 \text{ kPa}$   
 $P_l = 1350 \text{ kPa}$        $E_r = \text{      kPa}$   
 $P_{l^*} = 1335.1 \text{ kPa}$      $E_o/P_{l^*} = 6.9$



T'BAY: OCT. 85: HOLE# 15: RW 12-30: STA. 5+912.5: 3mR: 1.5

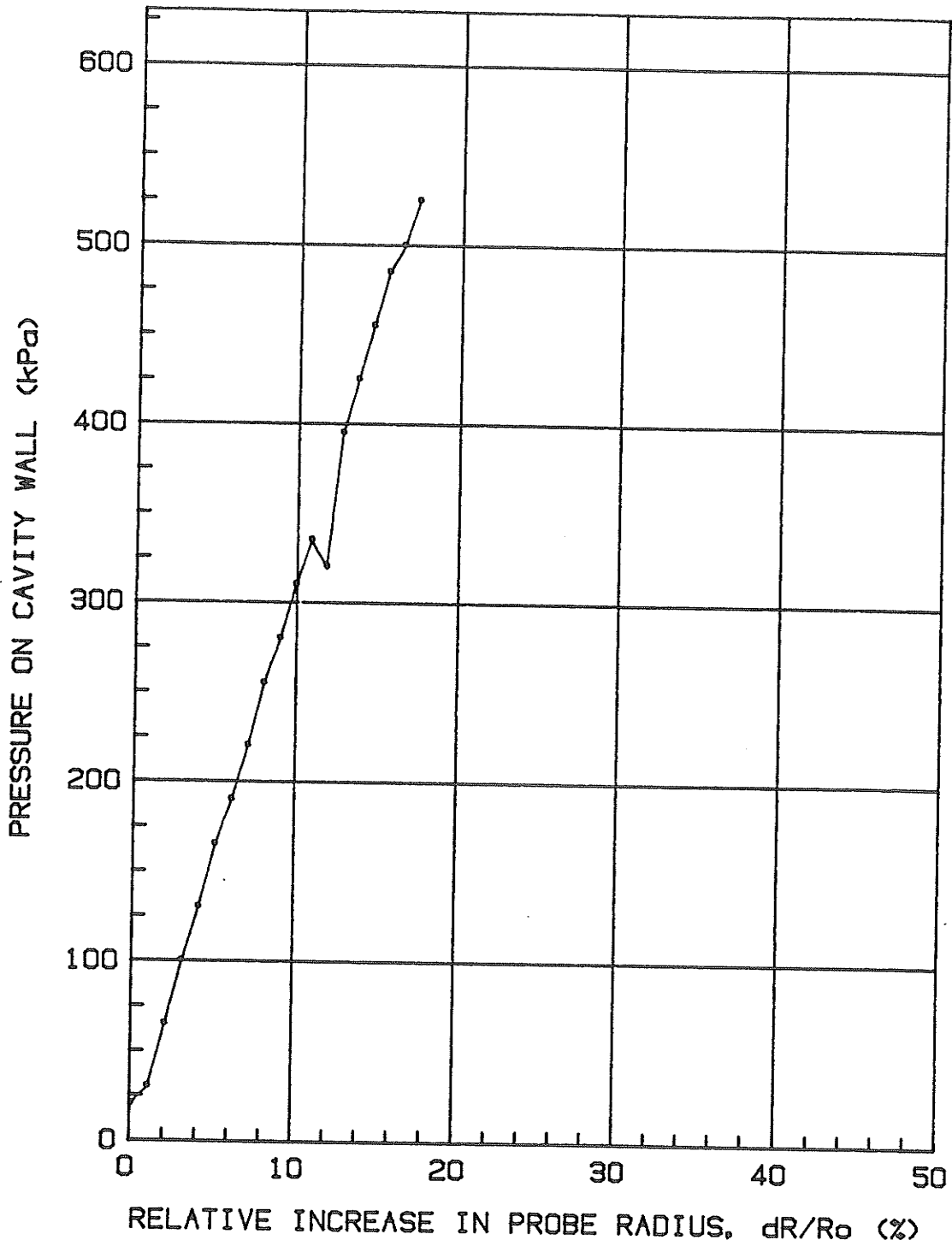
Po = 27 kPa  
P1 = 620 kPa  
P1\* = 593 kPa

Eo = 4587 kPa  
Er =            kPa  
Eo/P1\* = 7.7



T' BAY: OCT. 85: HOLE# 15: RW 12-30: STA. 5+912.5: 3mR: 2.5

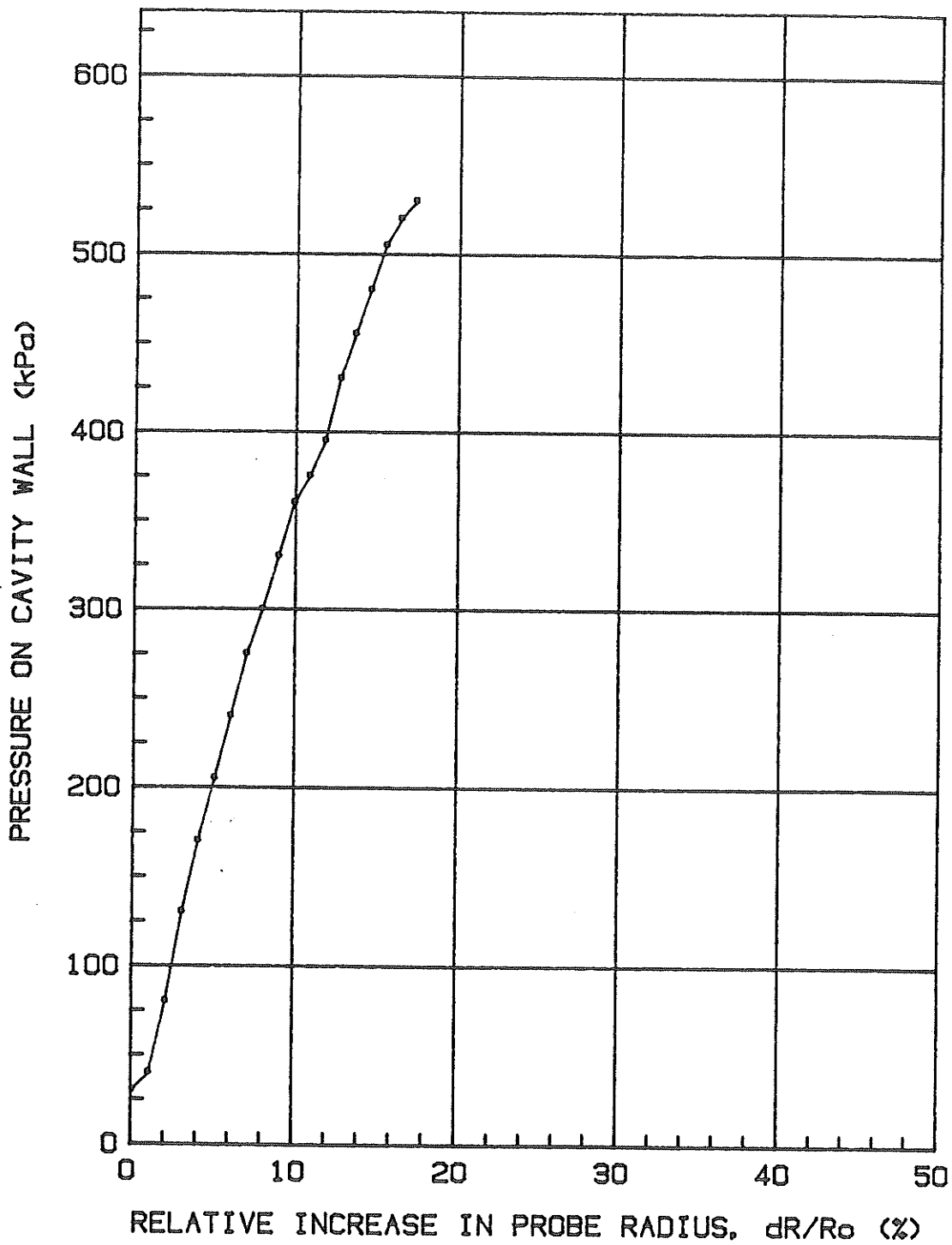
$P_0 = 14.9 \text{ kPa}$        $E_0 = 4422 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad \quad$



T' BAY: OCT. 85: HOLE# 16: RW 12-30: STA. 6+101: 3mR: 1.5 m

$P_0 = 27 \text{ kPa}$   
 $P_1 = 570 \text{ kPa}$   
 $P_{1*} = 543 \text{ kPa}$

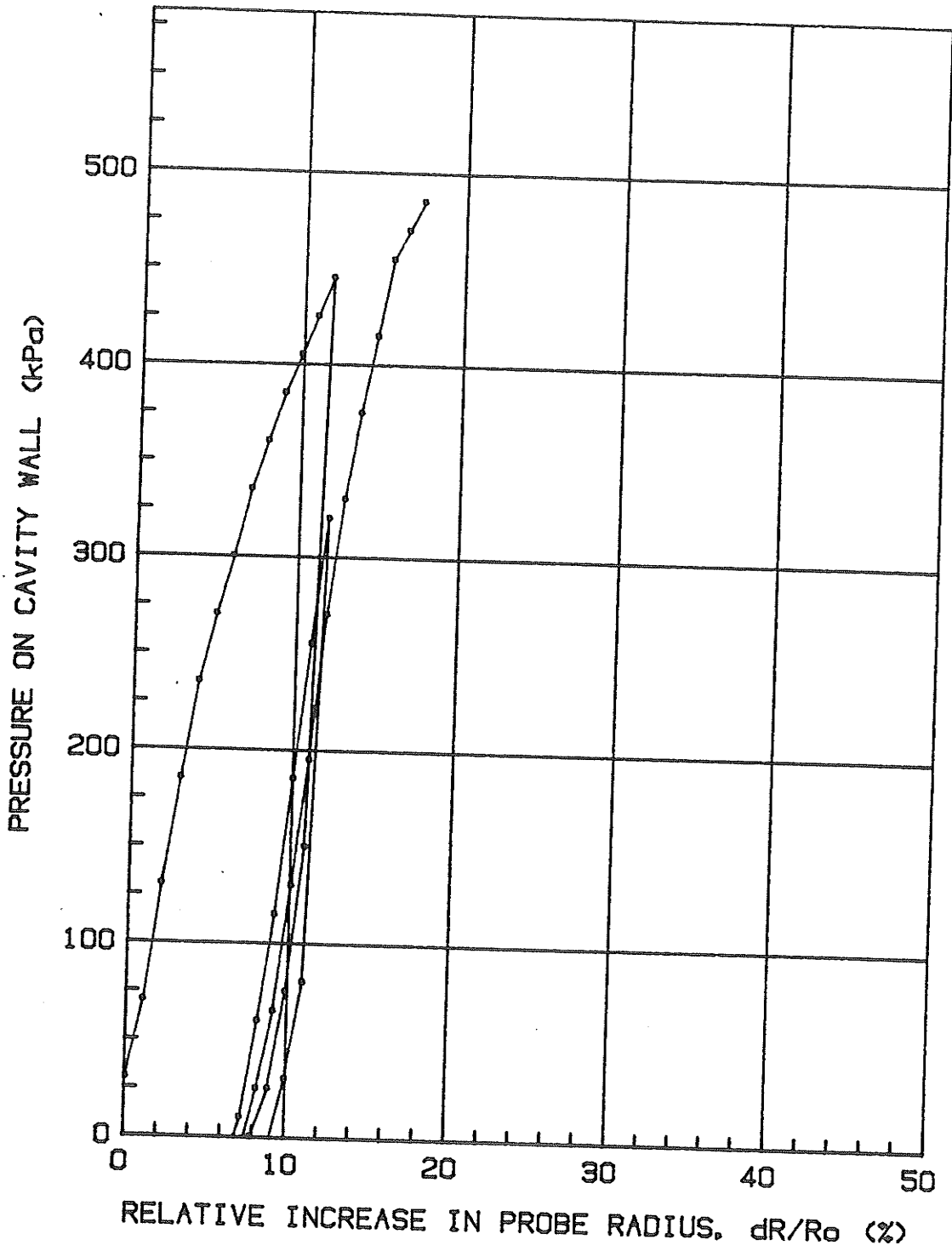
$E_0 = 5476 \text{ kPa}$   
 $E_r = \text{ kPa}$   
 $E_0/P_{1*} = 10$



T'BAY: OCT. 85: HOLE# 16: RW 12-30: STA. 6+101: 3mR: 2.5 m

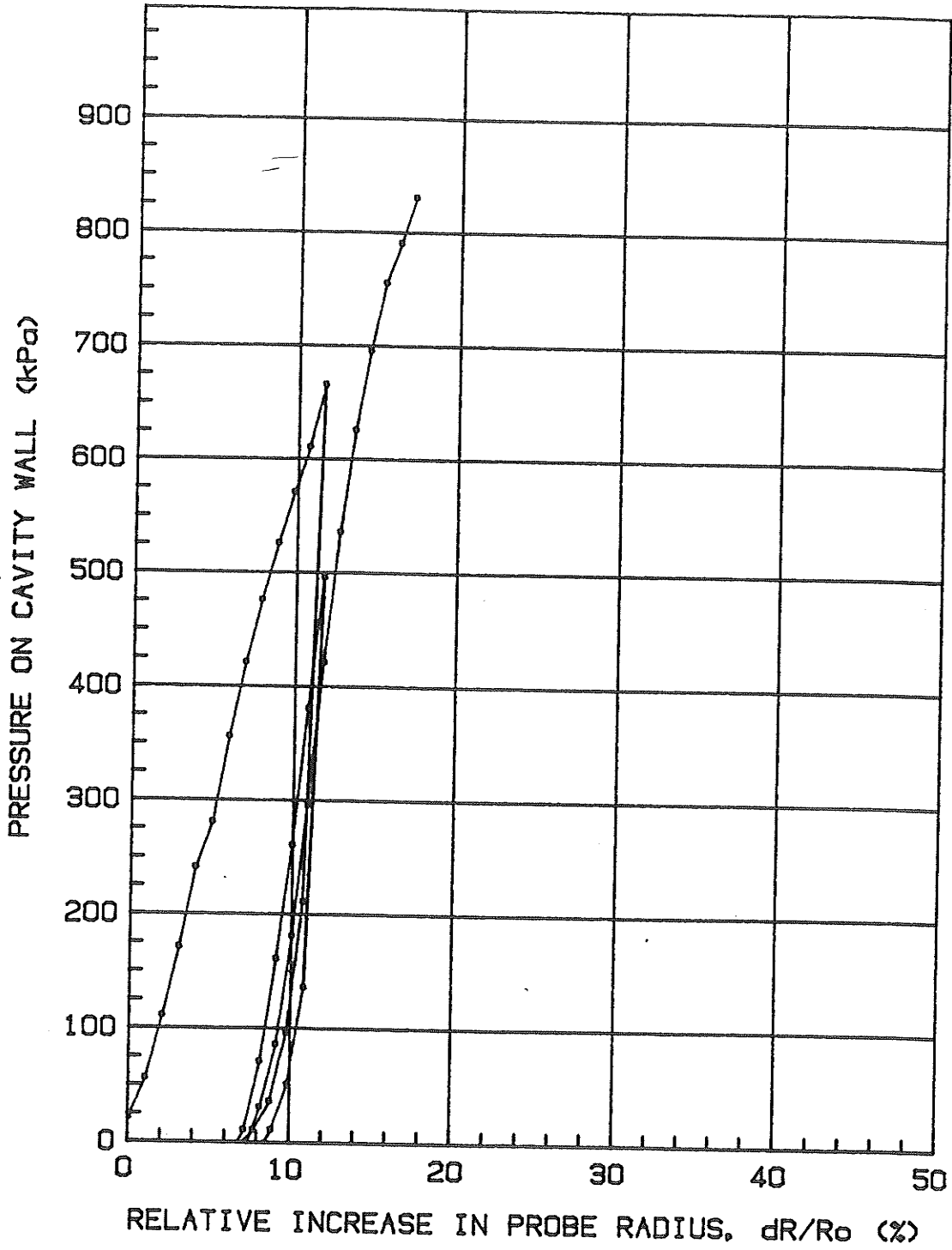
$P_o = 27 \text{ kPa}$   
 $P_1 = 520 \text{ kPa}$   
 $P_{1*} = 493 \text{ kPa}$

$E_o = 7507 \text{ kPa}$   
 $E_r = 10614 \text{ kPa}$   
 $E_o/P_{1*} = 15.2$



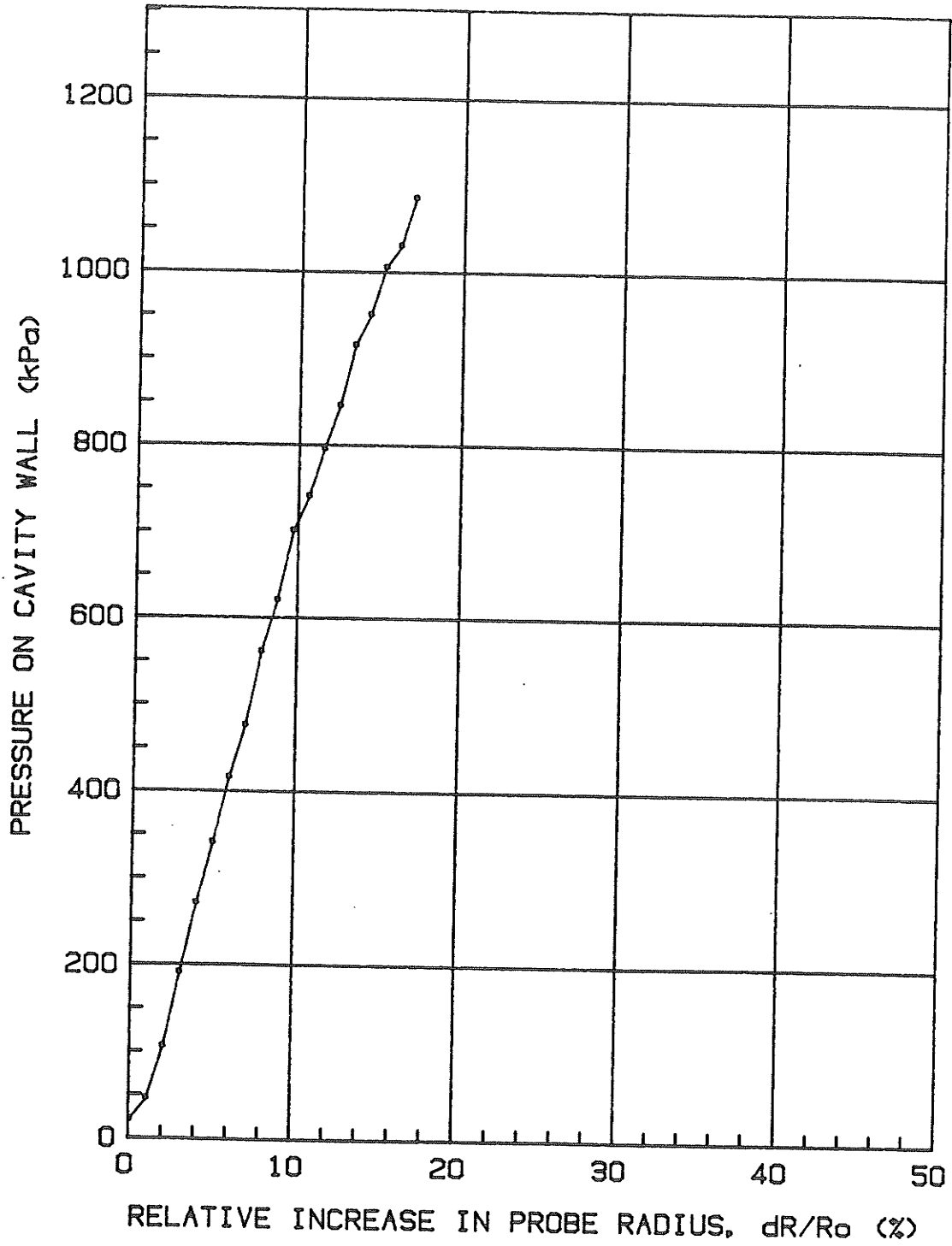
T' BAY, OCT. 85, HOLE# 17, RW12-30, STA. 6+199, 3mL, 2.5 m

$P_o = 14.9 \text{ kPa}$        $E_o = 8726 \text{ kPa}$   
 $P_l = 1020 \text{ kPa}$        $E_r = 19890 \text{ kPa}$   
 $P_l^* = 1005.1 \text{ kPa}$      $E_o/P_l^* = 8.600001$



T' BAY, OCT. 85, HOLE# 17, RW12-30, STA. 6+199, 3mL, 1.5 m

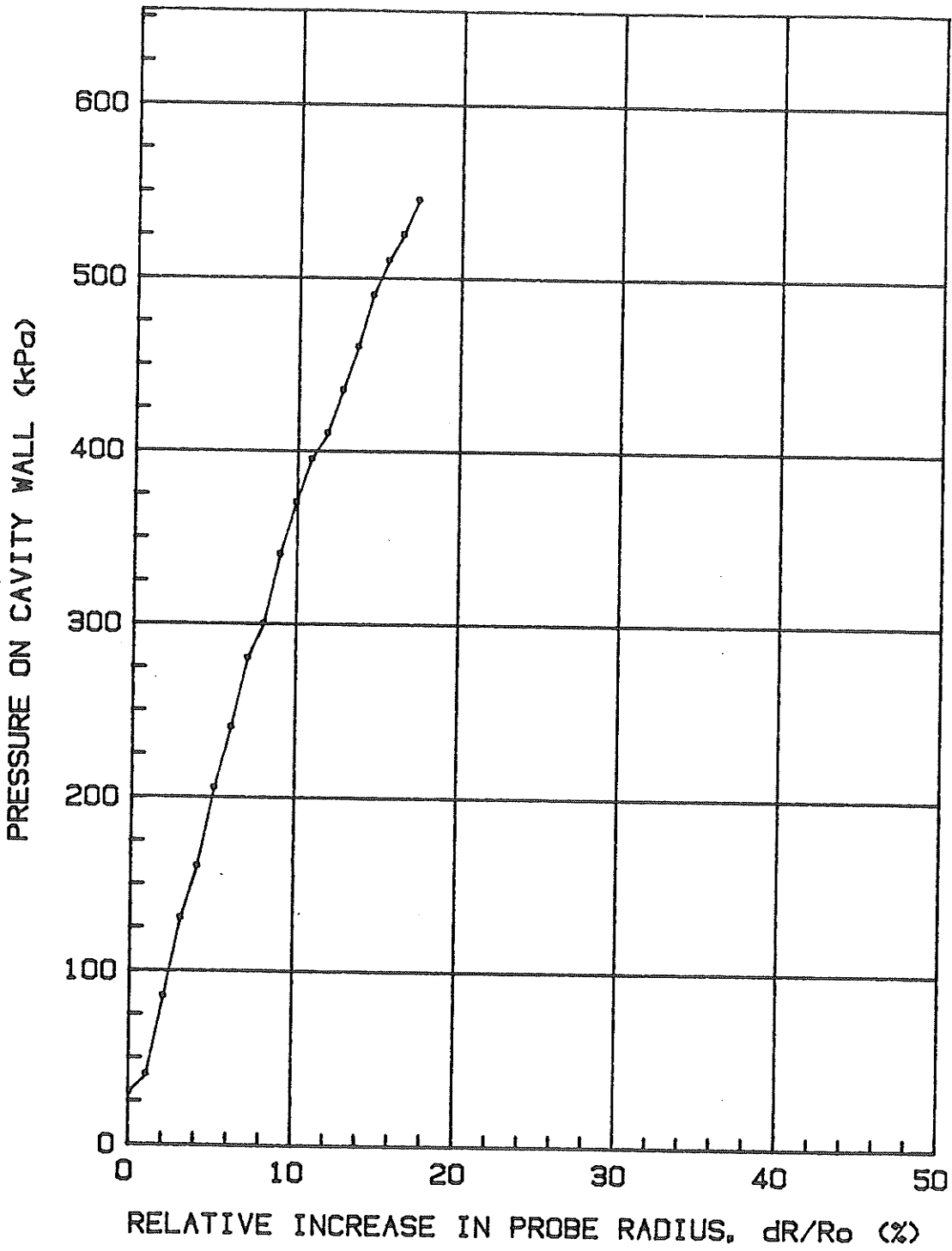
$P_o = 14.9 \text{ kPa}$        $E_o = 11036 \text{ kPa}$   
 $P_l = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{l*} = \quad \quad \text{kPa}$        $E_o/P_{l*} = \quad \quad \quad$



T' BAY: OCT. 85: HOLE# 18: RW12-30: STA. 6+400: 3mL: 1.5 m

Po = 27 kPa  
P1 = 700 kPa  
P1\* = 673 kPa

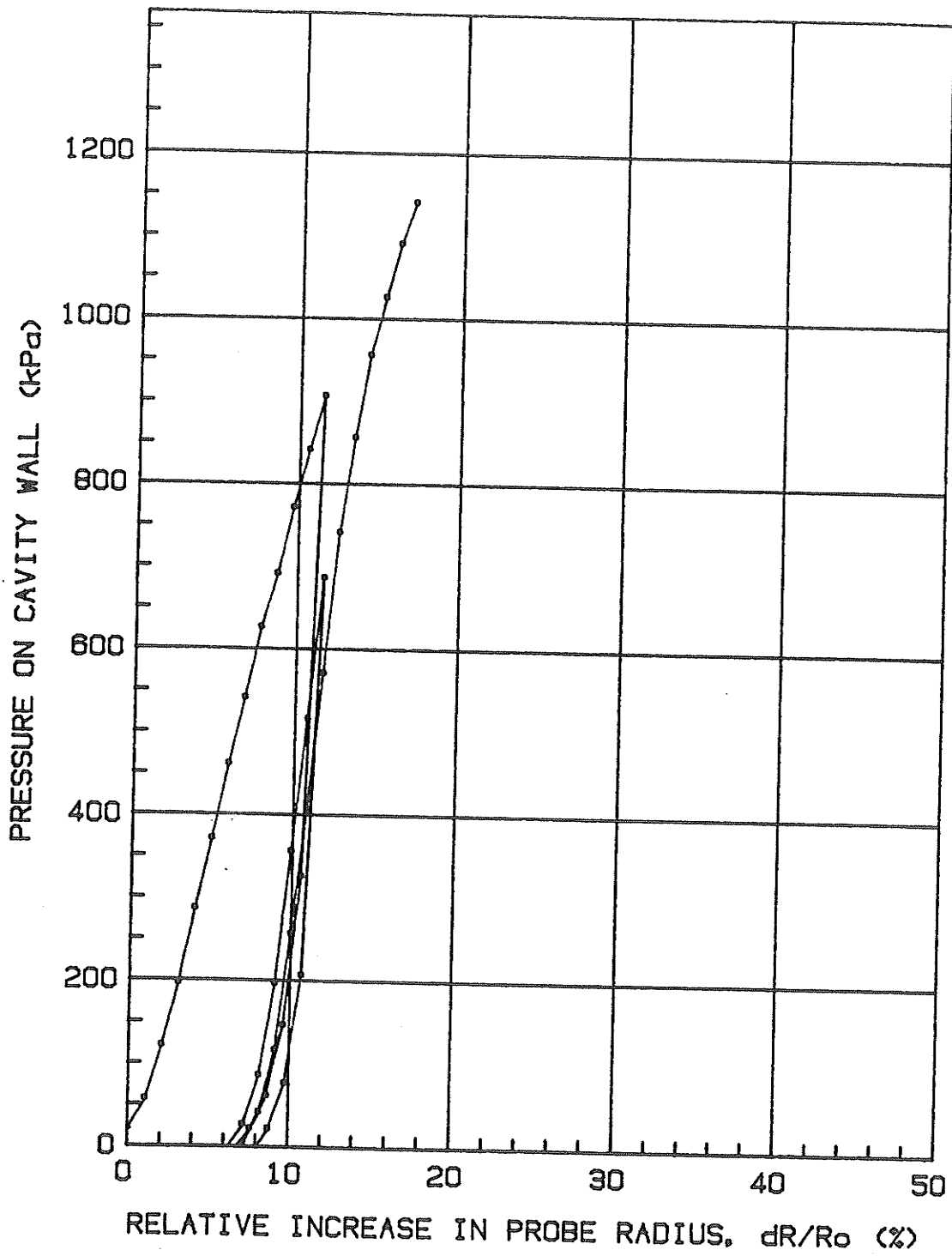
Eo = 5227 kPa  
Er =            kPa  
Eo/P1\* = 7.7



T' BAY: OCT. 85: HOLE# 18: RW12-30: STA. 6+400: 3mL: 2.5 m



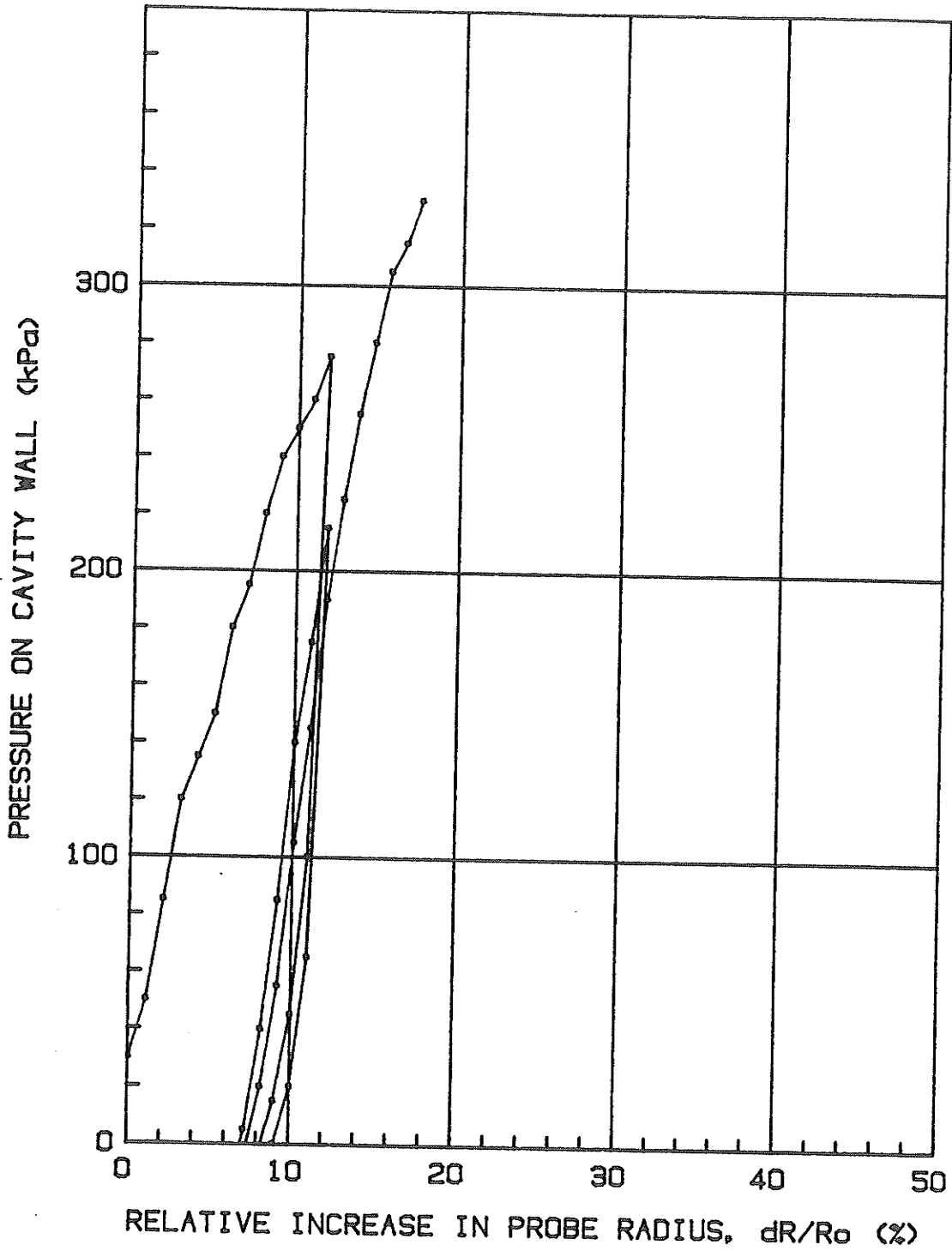
$P_o = 14.9 \text{ kPa}$        $E_o = 12636 \text{ kPa}$   
 $P_l = 1400 \text{ kPa}$        $E_r = 27694 \text{ kPa}$   
 $P_{l*} = 1385.1 \text{ kPa}$      $E_o/P_{l*} = 9.100001$



T' BAY: OCT. 85: HOLE# 19: RW12-30: STA. 6+497: 3mL: 1.5 m

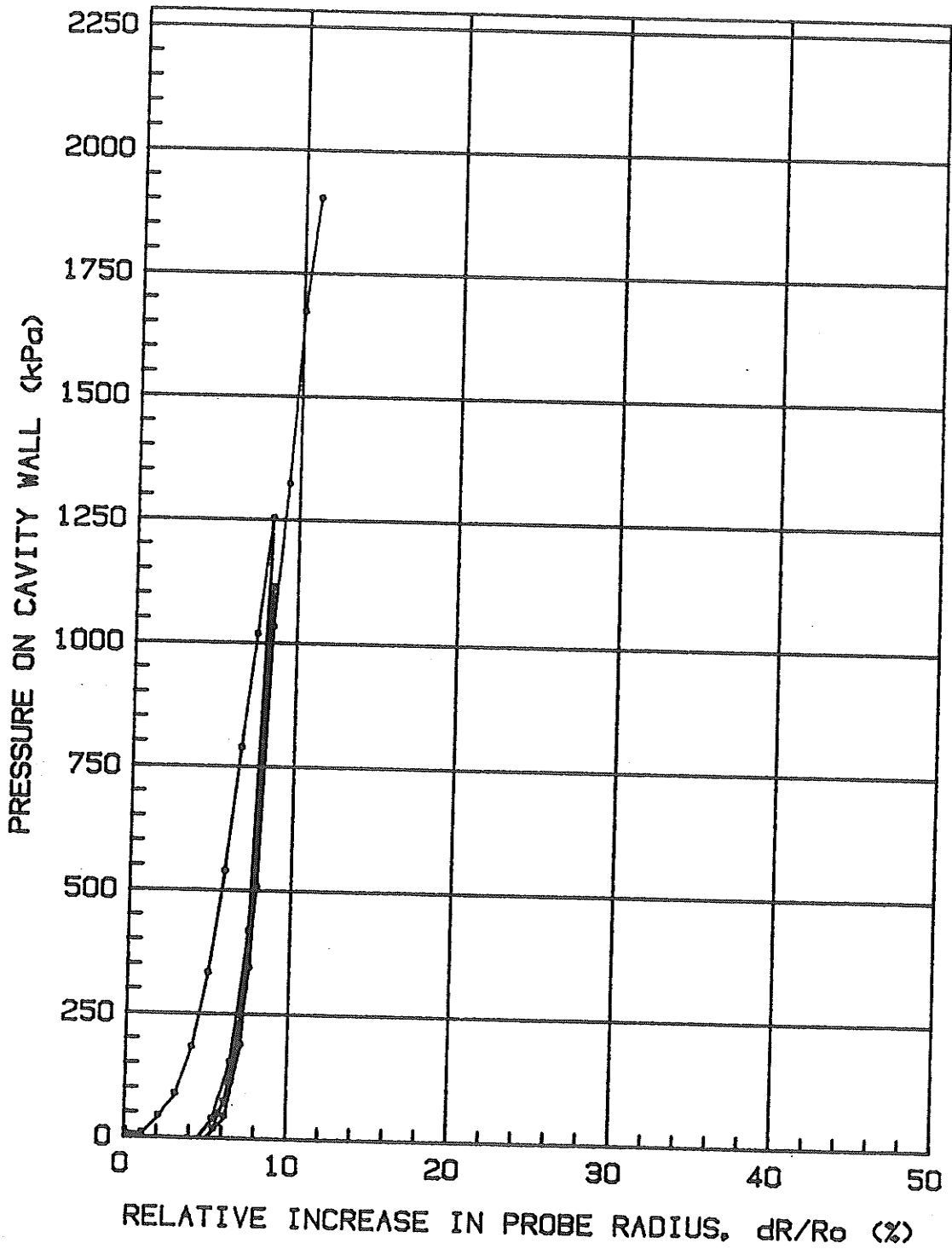
Po = 27 kPa  
P1 = 400 kPa  
P1\* = 373 kPa

Eo = 4670 kPa  
Er = 6713 kPa  
Eo/P1\* = 12.5



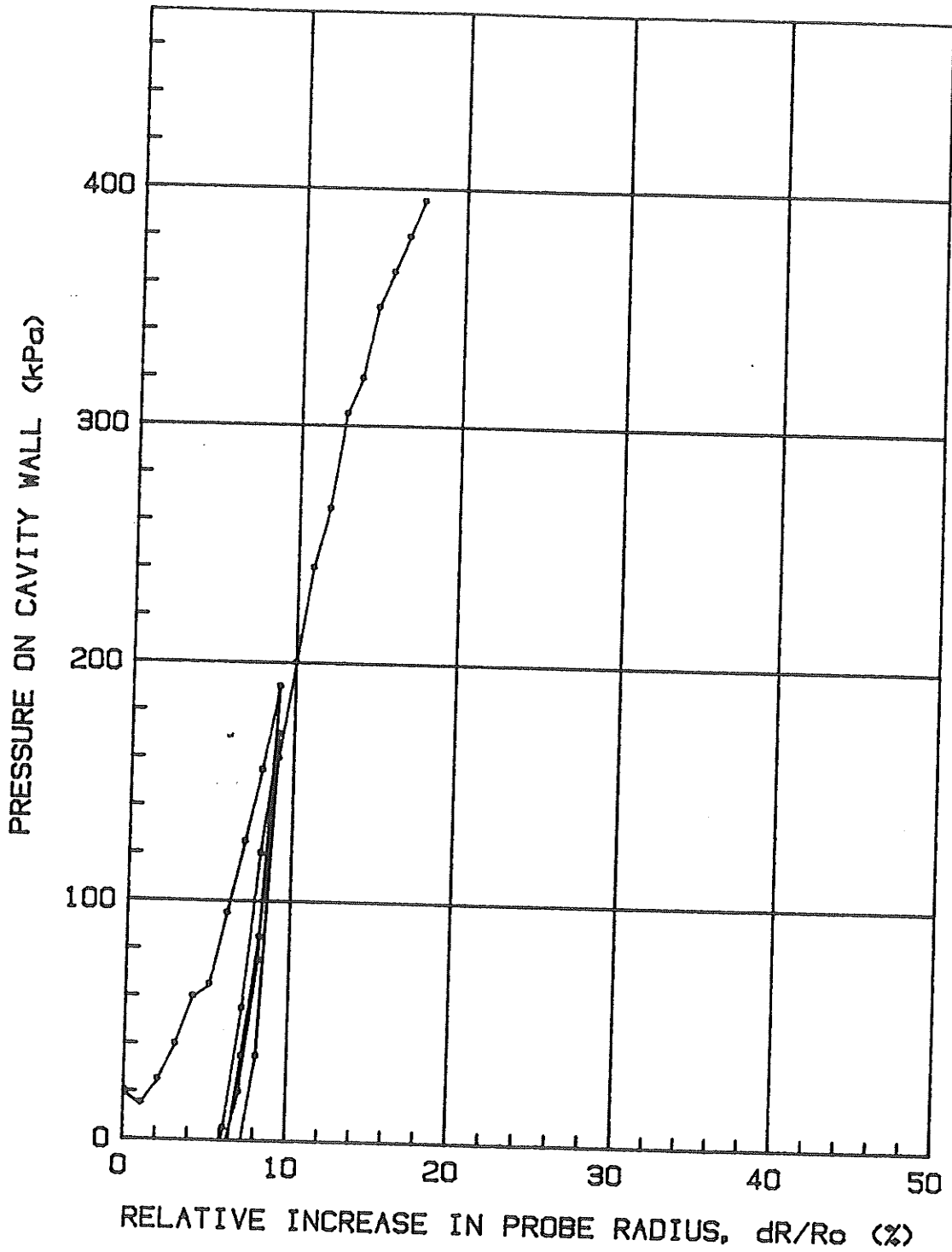
T' BAY: OCT. 85: HOLE# 19: RW12-30: STA. 6+497: 3mR: 2.5 m

$P_o = 6.3 \text{ kPa}$        $E_o = 39939 \text{ kPa}$   
 $P_l = \quad \quad \text{kPa}$        $E_r = 112465 \text{ kPa}$   
 $P_{l*} = \quad \quad \text{kPa}$        $E_o/P_{l*} =$



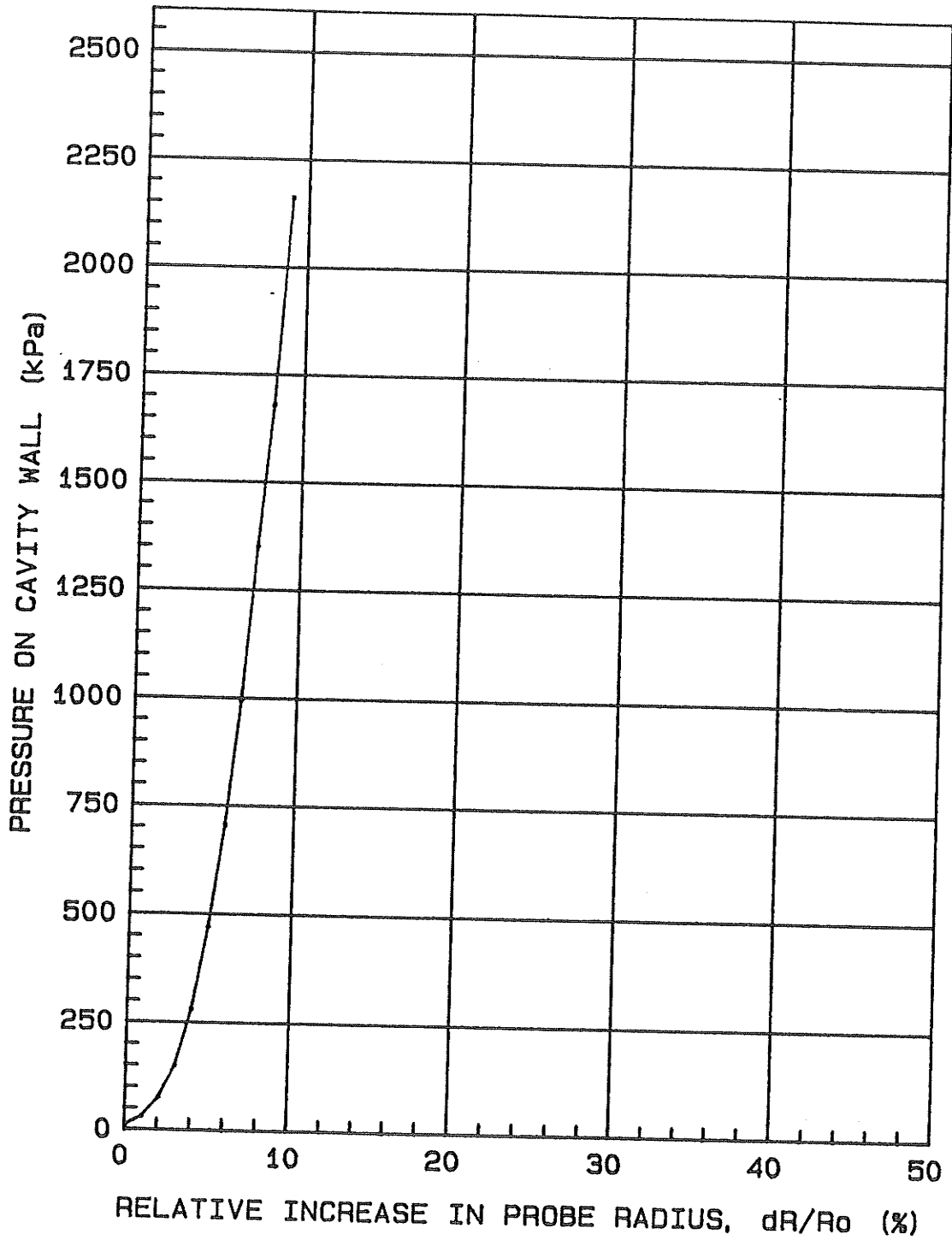
BRANDON, OCT. 85, HOLE# 2, RW 08-26, STA. 5+183, 3mL, 0.6 m

$P_o = 17.1 \text{ kPa}$        $E_o = 4570 \text{ kPa}$   
 $P_l = 470 \text{ kPa}$        $E_r = 9488 \text{ kPa}$   
 $P_l^* = 452.9 \text{ kPa}$      $E_o/P_l^* = 10$



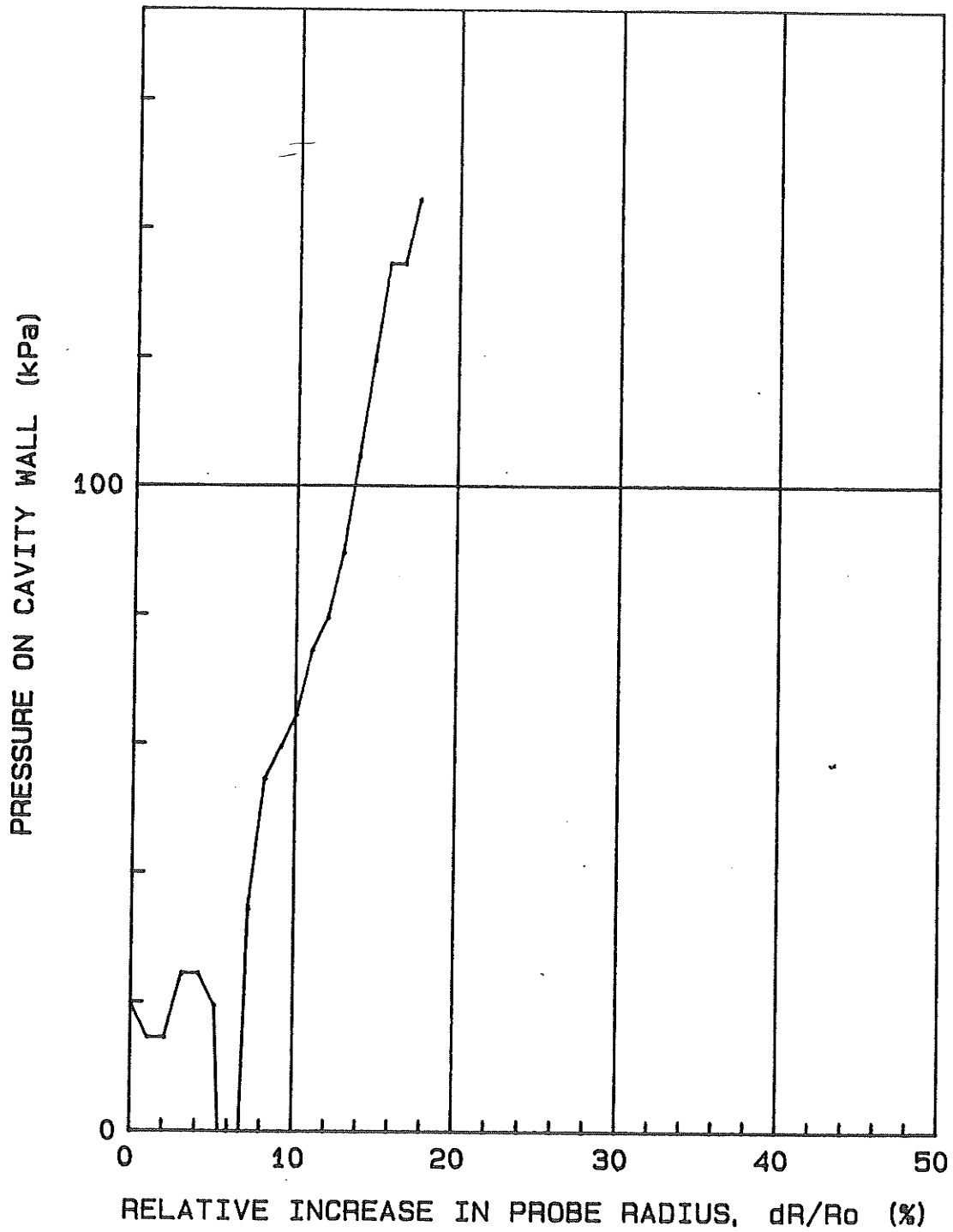
BRANDON, OCT. 85, HOLE# 2, RW 08-26, STA. 5+183, 3mL, 1.5 m

$P_0 = 6.3 \text{ kPa}$        $E_0 = 63625 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad \quad$



BRANDON: OCT. 85: HOLE# 3: RW 08-26: STA .5+488: 3mR: 0.6 m

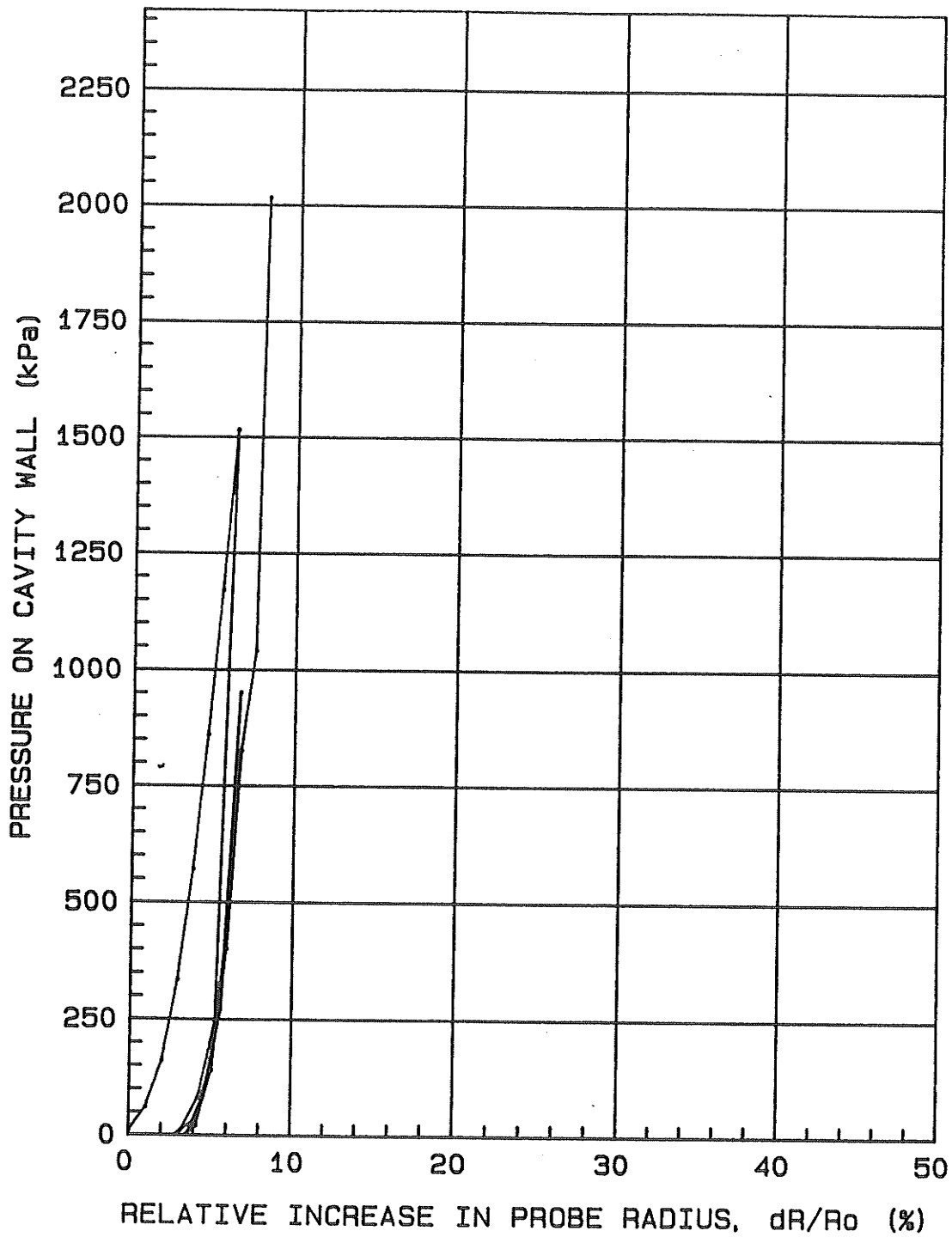
$P_0 = 17.3 \text{ kPa}$        $E_0 = 2465 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad$



BRANDON: OCT. 85: HOLE# 3: RW 08-26: STA. 5+488: 3mR: 1.5 m

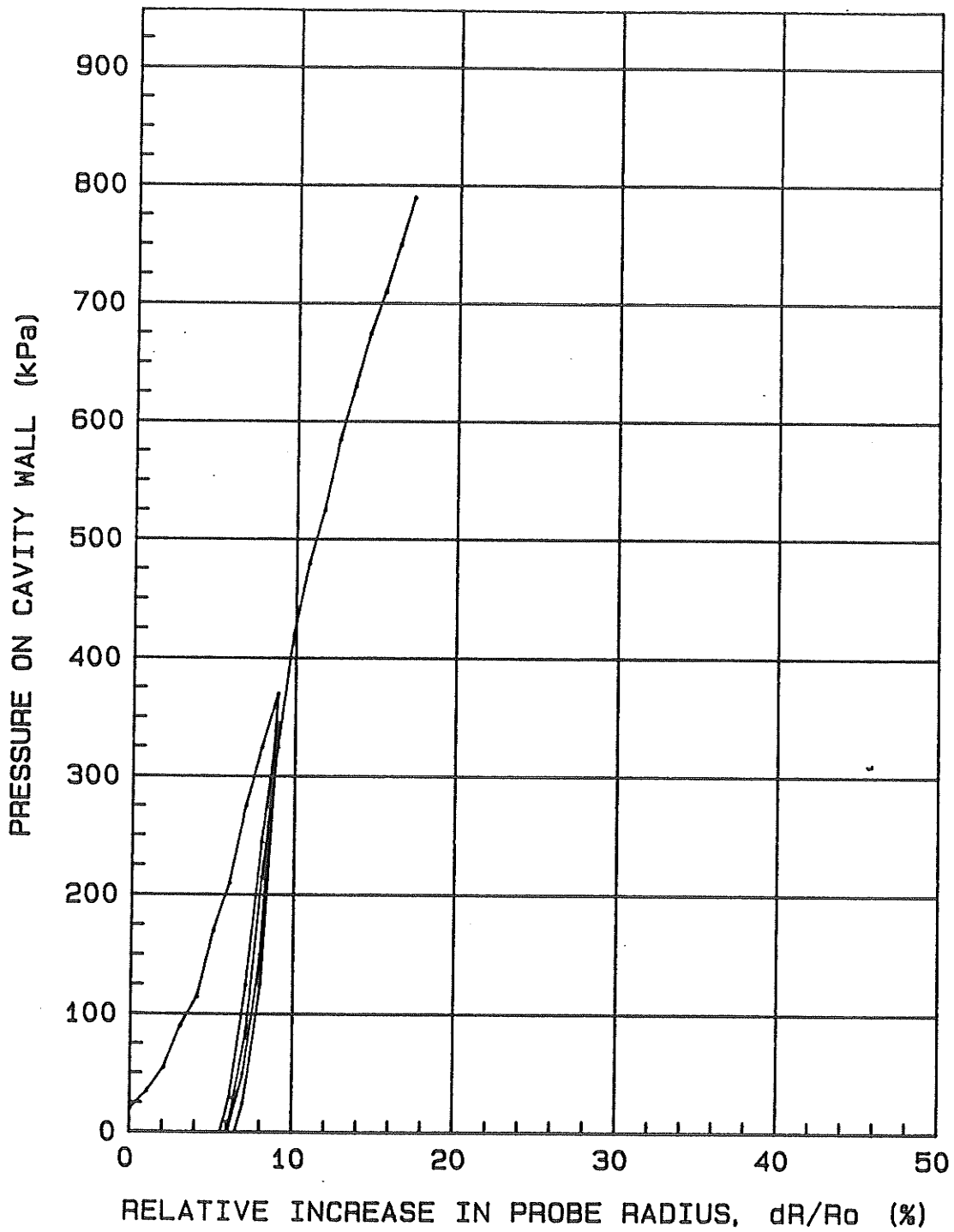
Po = 6.3 kPa  
P1 =           kPa  
P1\* =           kPa

Eo = 53777 kPa  
Er = 109682 kPa  
Eo/P1\* =



BRANDON: OCT.85: HOLE# 4: RW 08-26: STA.5+787: 3mL: 0.6 m

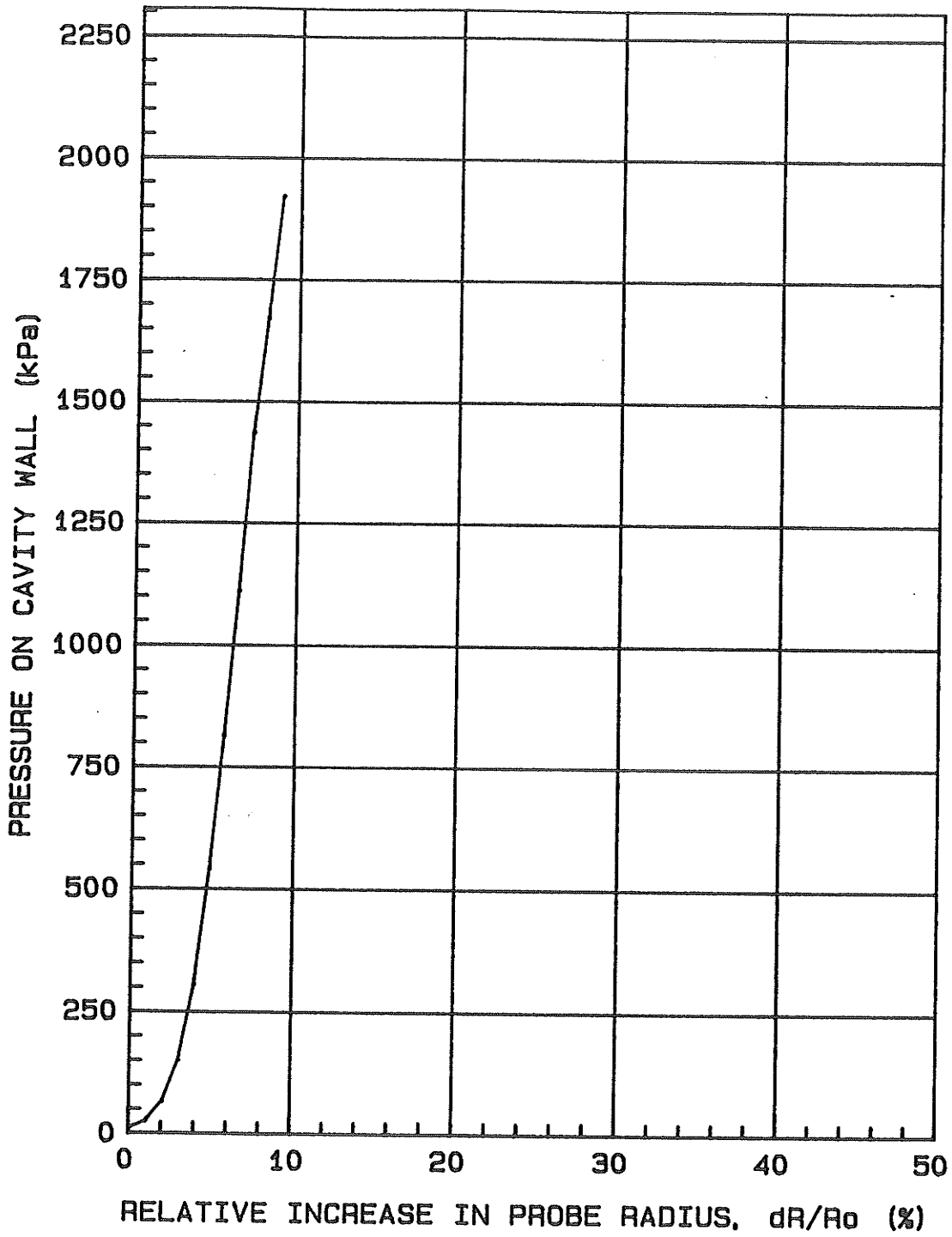
$P_0 = 15.7 \text{ kPa}$        $E_0 = 7474 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = 18877 \text{ kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



BRANDON: OCT .85: HOLE# 4: RW 08-26: STA .5+787: 3mL: 1.5 m

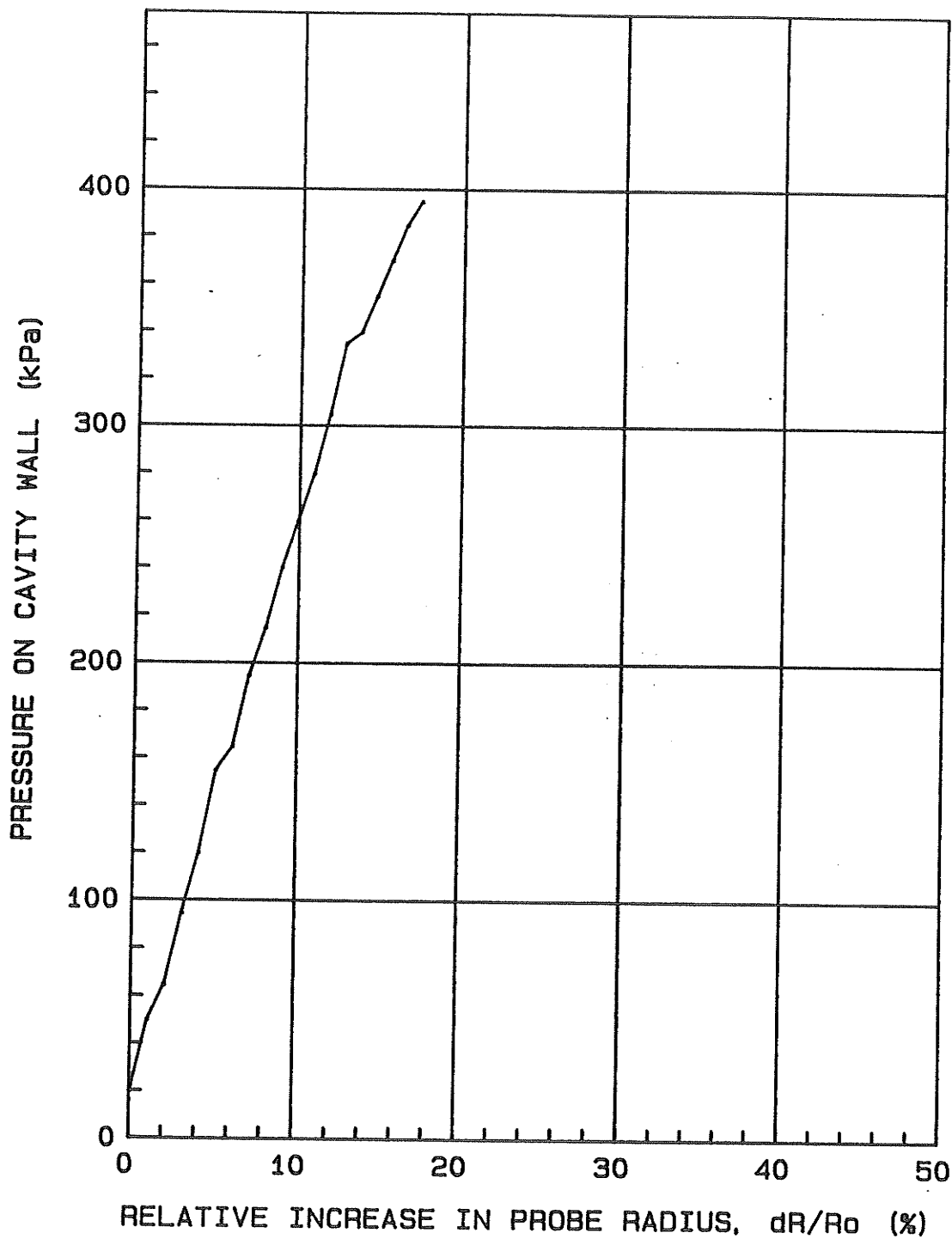


Po = 6.3 kPa      Eo = 52324 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



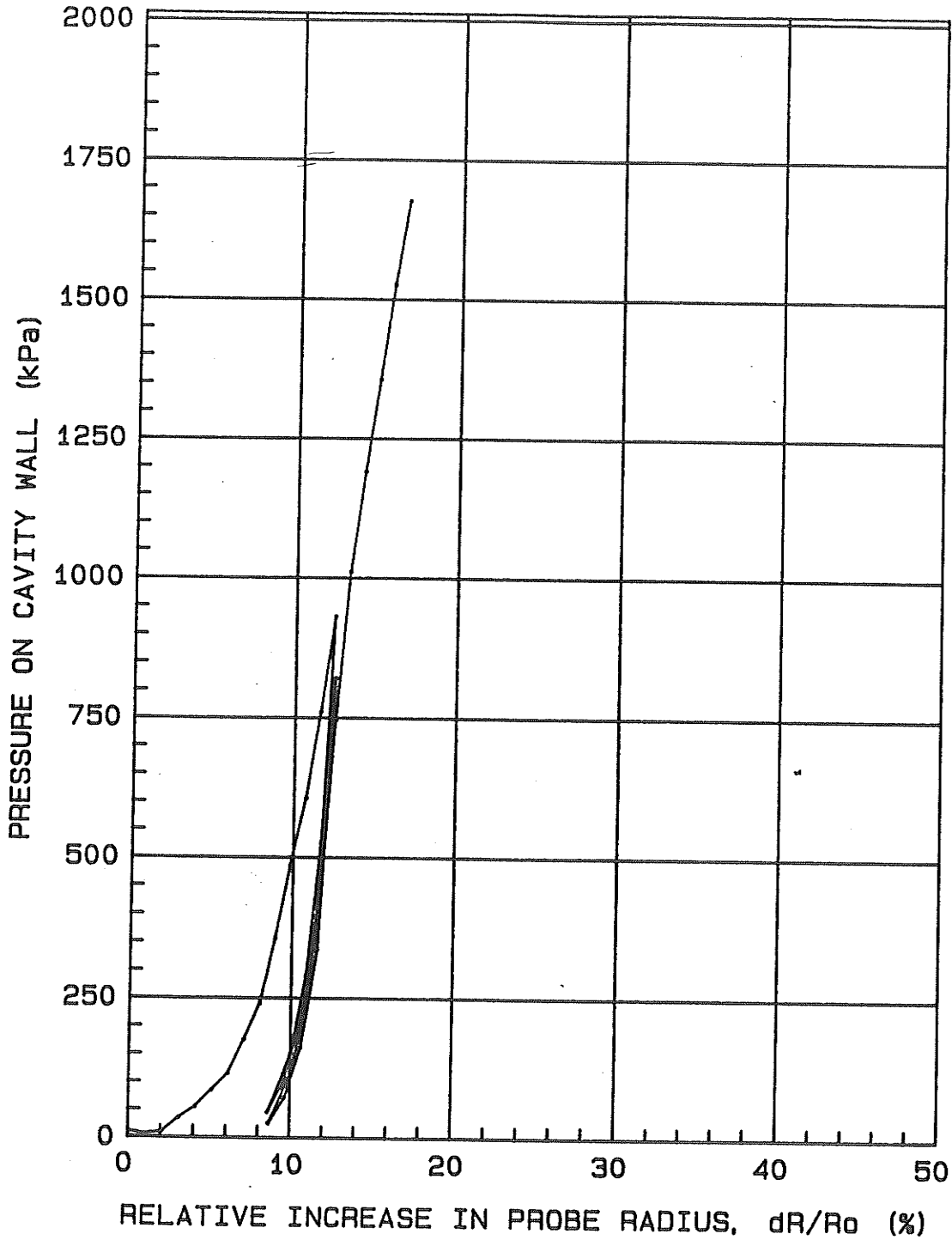
BRANDON: OCT. 85: HOLE# 5: RW 08-26: STA. 6+108: 3mR: 0.6 m

$P_0 = 15.7 \text{ kPa}$        $E_0 = 3404 \text{ kPa}$   
 $P_1 = 480 \text{ kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = 464.3 \text{ kPa}$      $E_0/P_{1*} = 7.3$



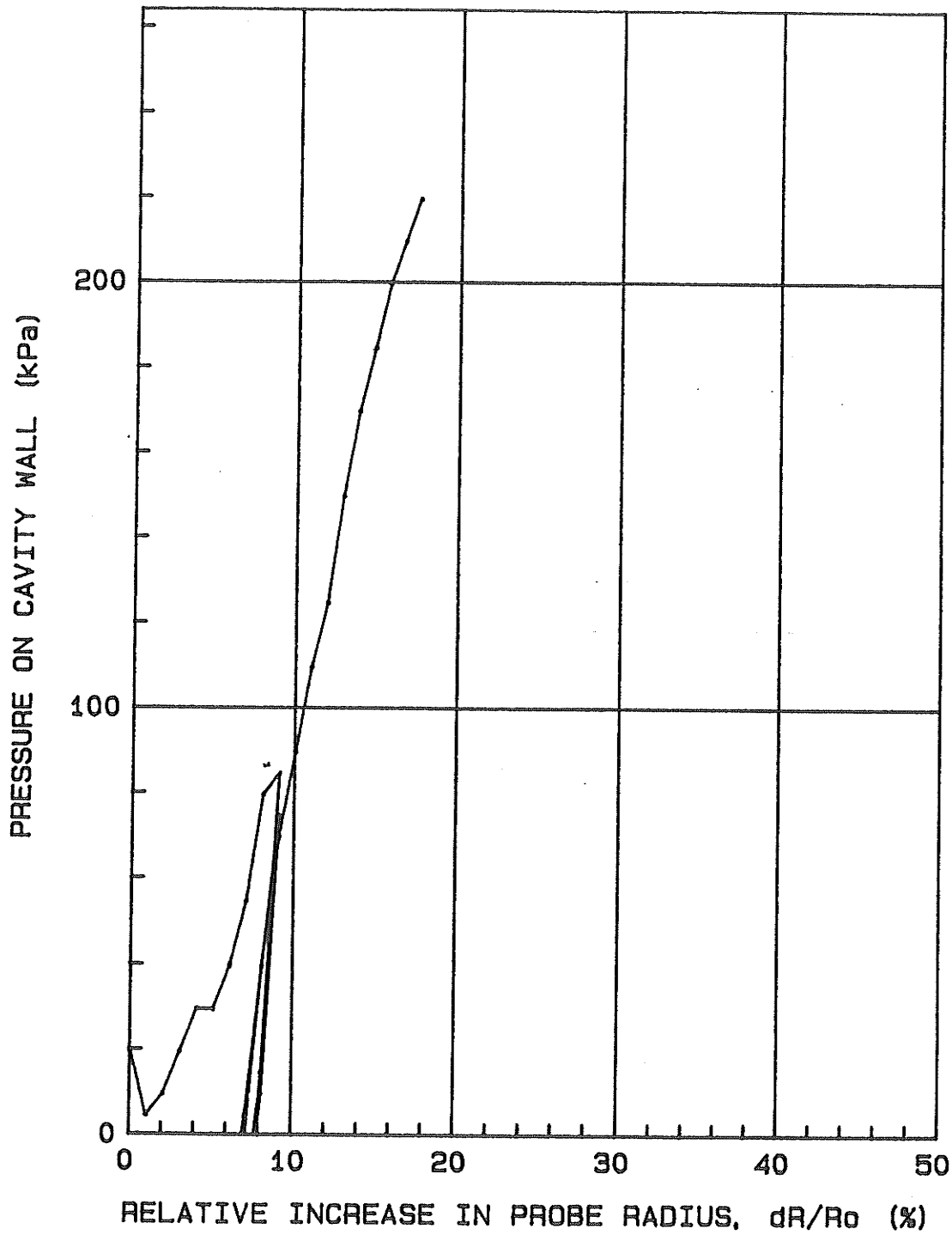
BRANDON: OCT. 85: HOLE# 5: RW 08-26: STA. 6+108: 3mR: 1.5 m

$P_0 = 6.3 \text{ kPa}$        $E_0 = 24092 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = 56231 \text{ kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



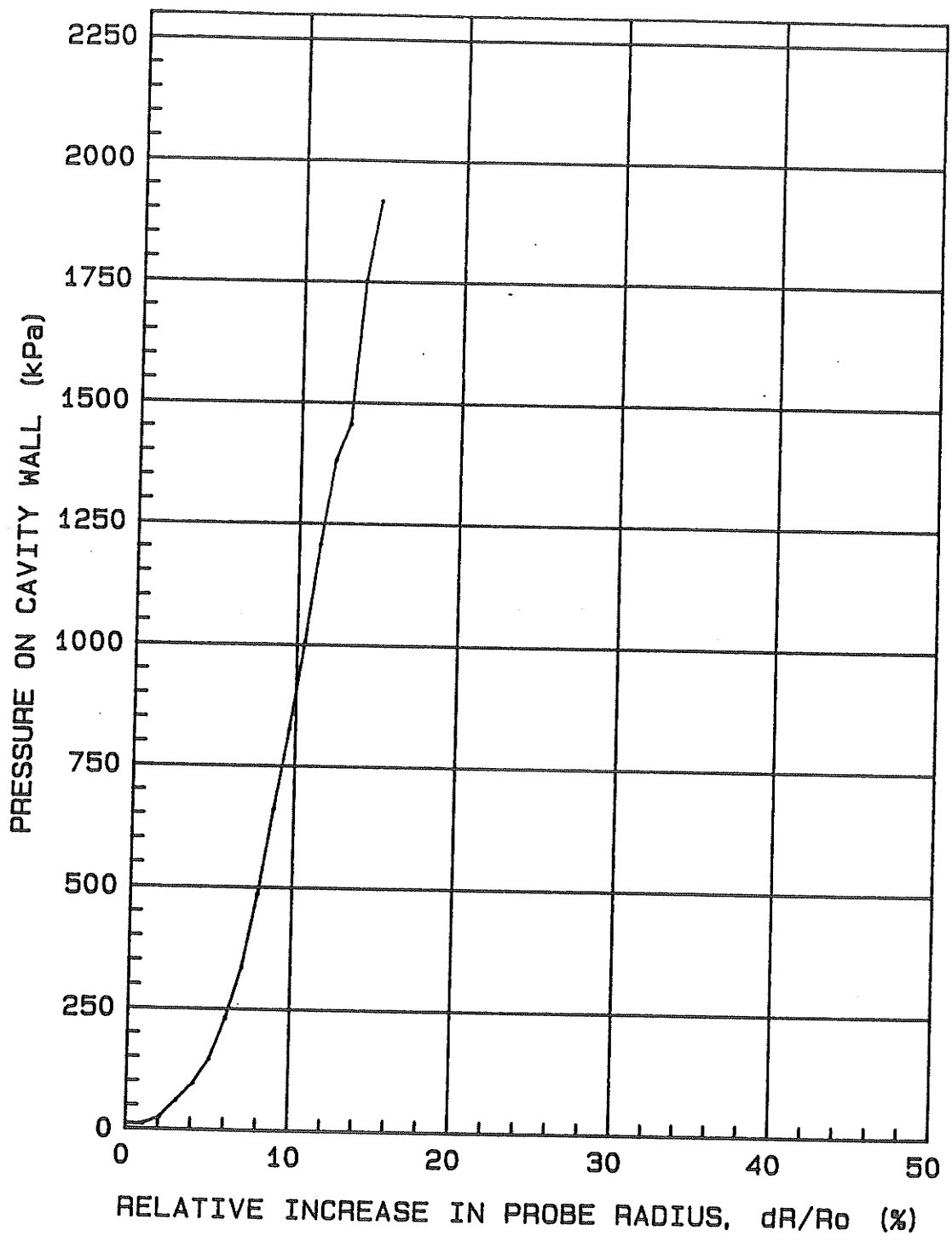
BRANDON: OCT. 85: HOLE# 6: RW 08-26: STA. 6+435: 3mL: 0.6 m

Po = 15.7 kPa      Eo = 1343 kPa  
P1 = 280 kPa      Er = 4928 kPa  
P1\* = 264.3 kPa    Eo/P1\* = 5



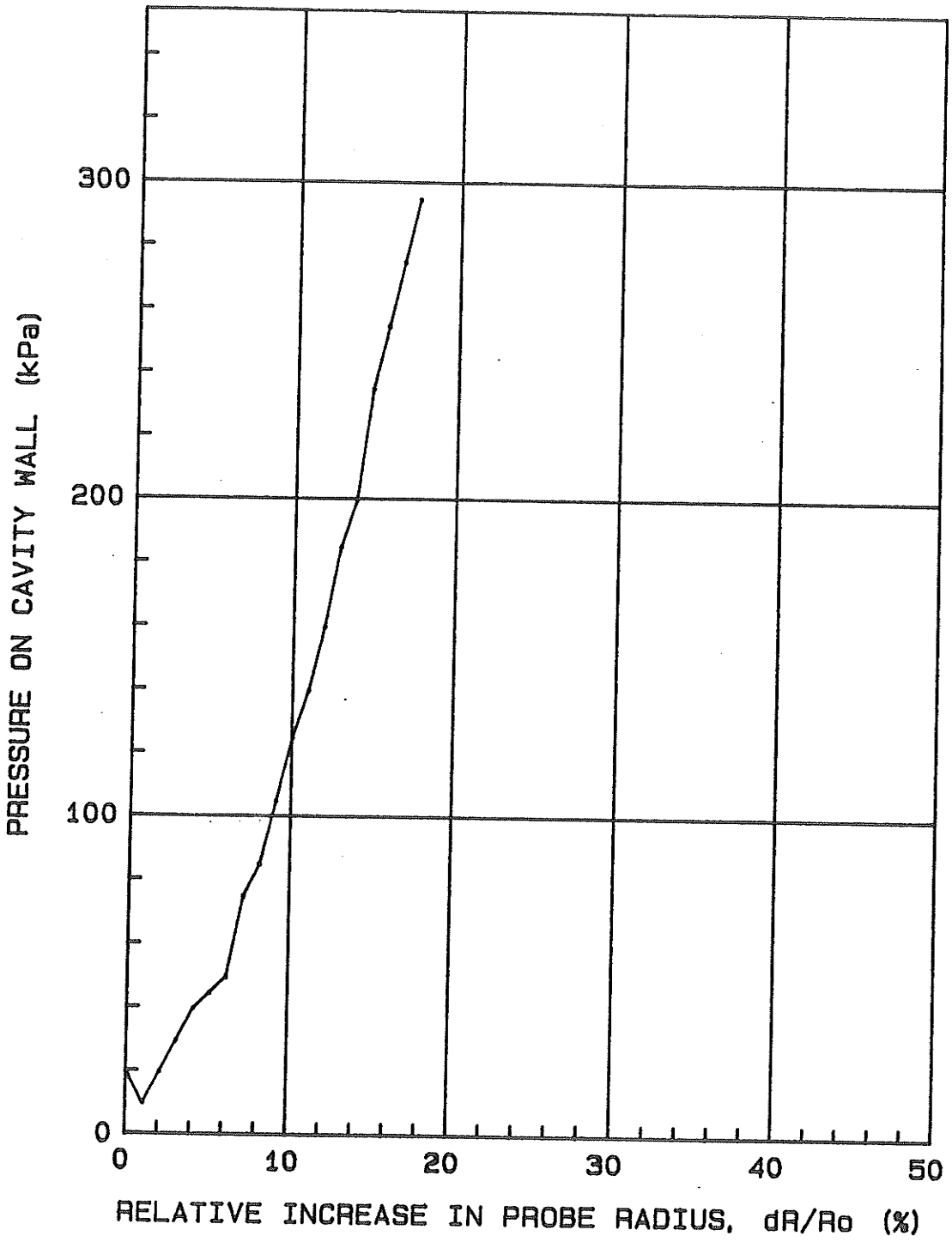
BRANDON: OCT. 85: HOLE# 6: RW 08-26: STA. 6+435: 3mL: 1.5 m

$P_0 = 6.3 \text{ kPa}$        $E_0 = 30360 \text{ kPa}$   
 $P_1 = 2300 \text{ kPa}$        $E_r = \text{      kPa}$   
 $P_{1*} = 2293.7 \text{ kPa}$      $E_0/P_{1*} = 13.2$



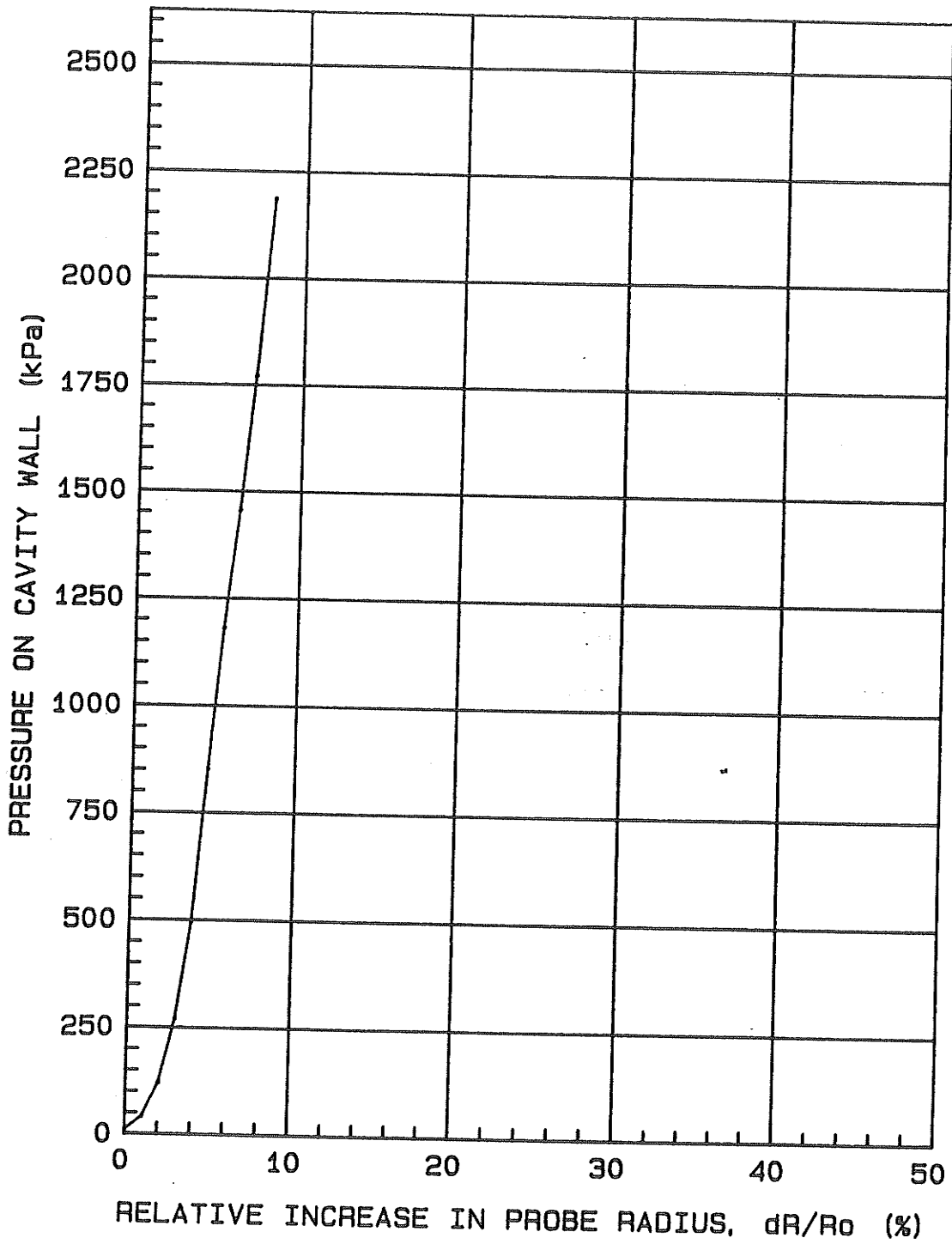
BRANDON: OCT. 85: HOLE# 8: RW 08-26: STA. 5+090: 3mL: 0.6 m

$P_o = 15.7 \text{ kPa}$        $E_o = 2804 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_o/P_{1*} = \quad \quad \quad$



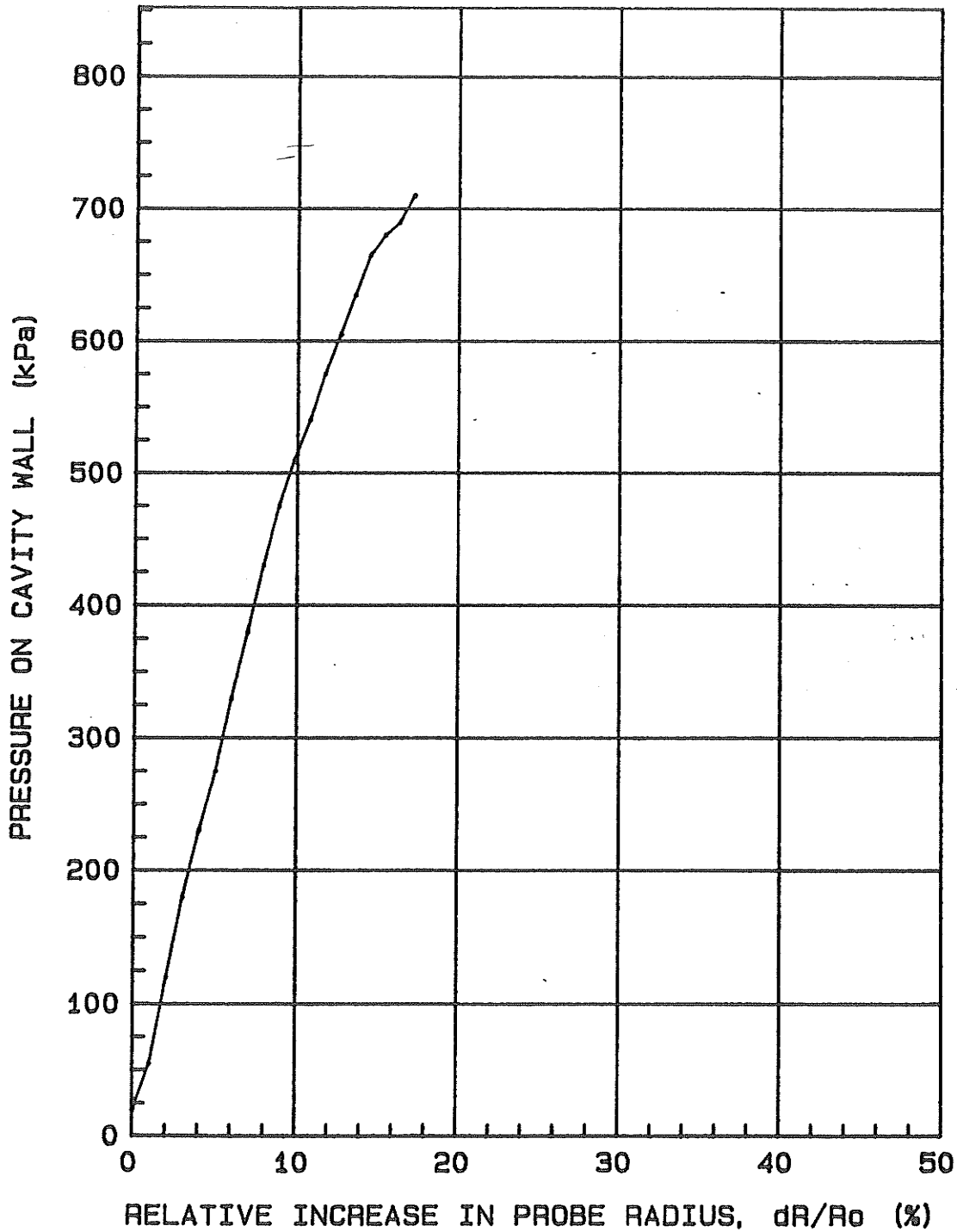
BRANDON: OCT. 85: HOLE# 8: RW 08-26: STA. 5+090: 3mR: 1.5 m

$P_0 = 6.3 \text{ kPa}$        $E_0 = 57042 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad$



BRANDON: OCT. 85: HOLE# 9: RW 08-26: STA. 5+278: 3mR: 0.6 m

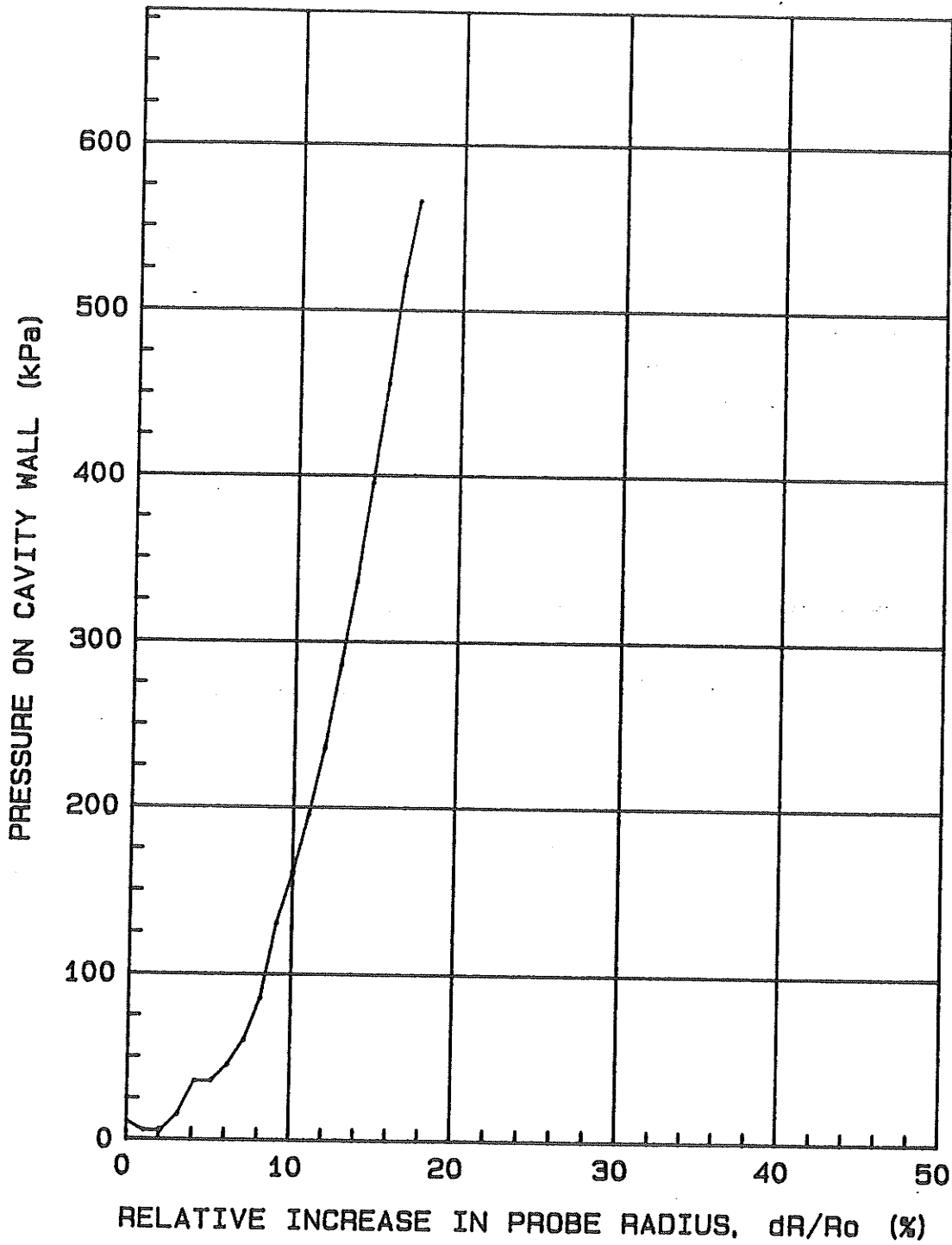
Po = 15.7 kPa      Eo = 7581 kPa  
P1 = 820 kPa      Er =            kPa  
P1\* = 804.3 kPa    Eo/P1\* = 9.399999



BRANDON: OCT. 85: HOLE# 9: RW 08-26: STA. 5+278: 3mR: 1.5 m

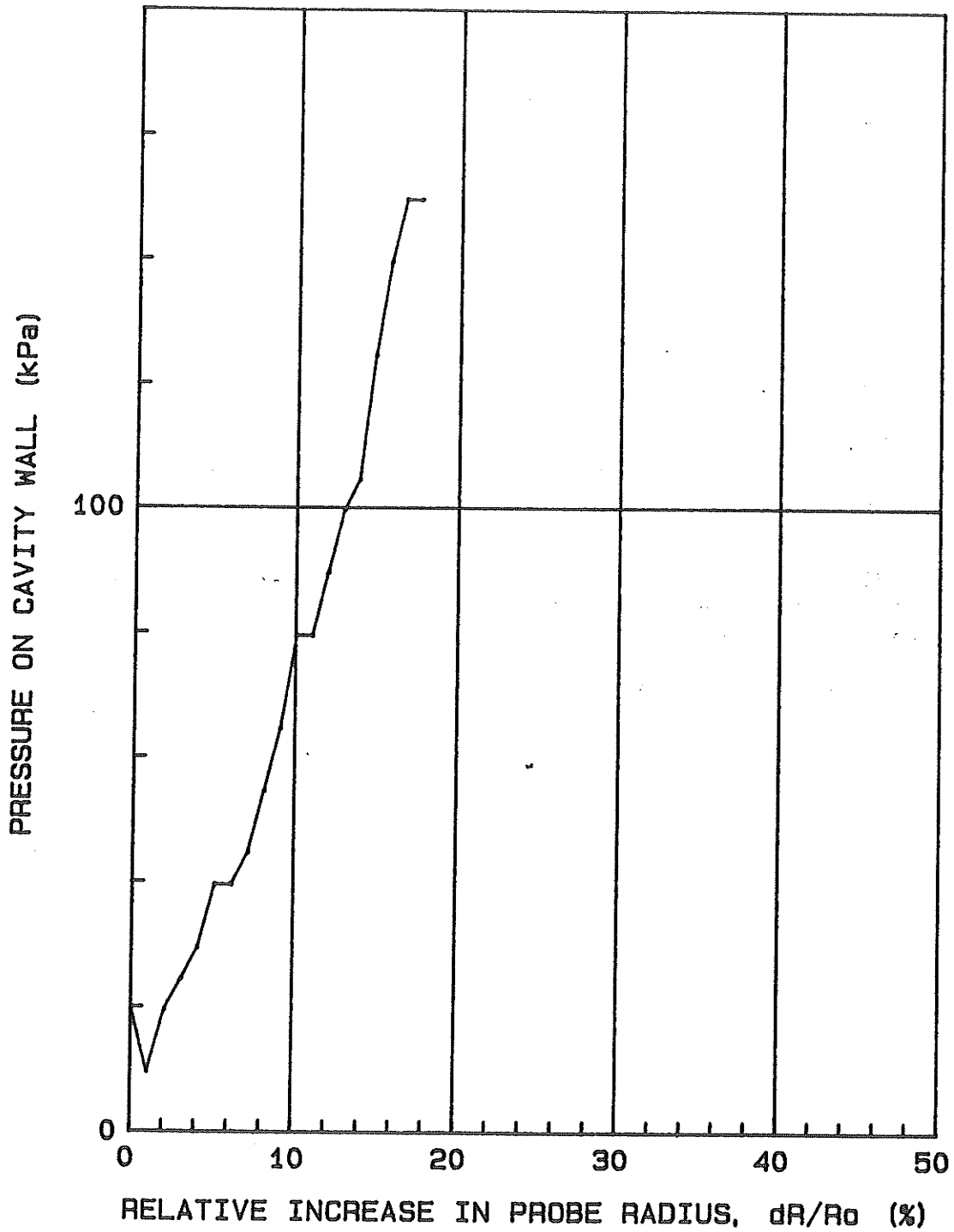


Po = 6.3 kPa      Eo = 9167 kPa  
P1 = 720 kPa      Er =            kPa  
P1\* = 713.7 kPa    Eo/P1\* = 12.8



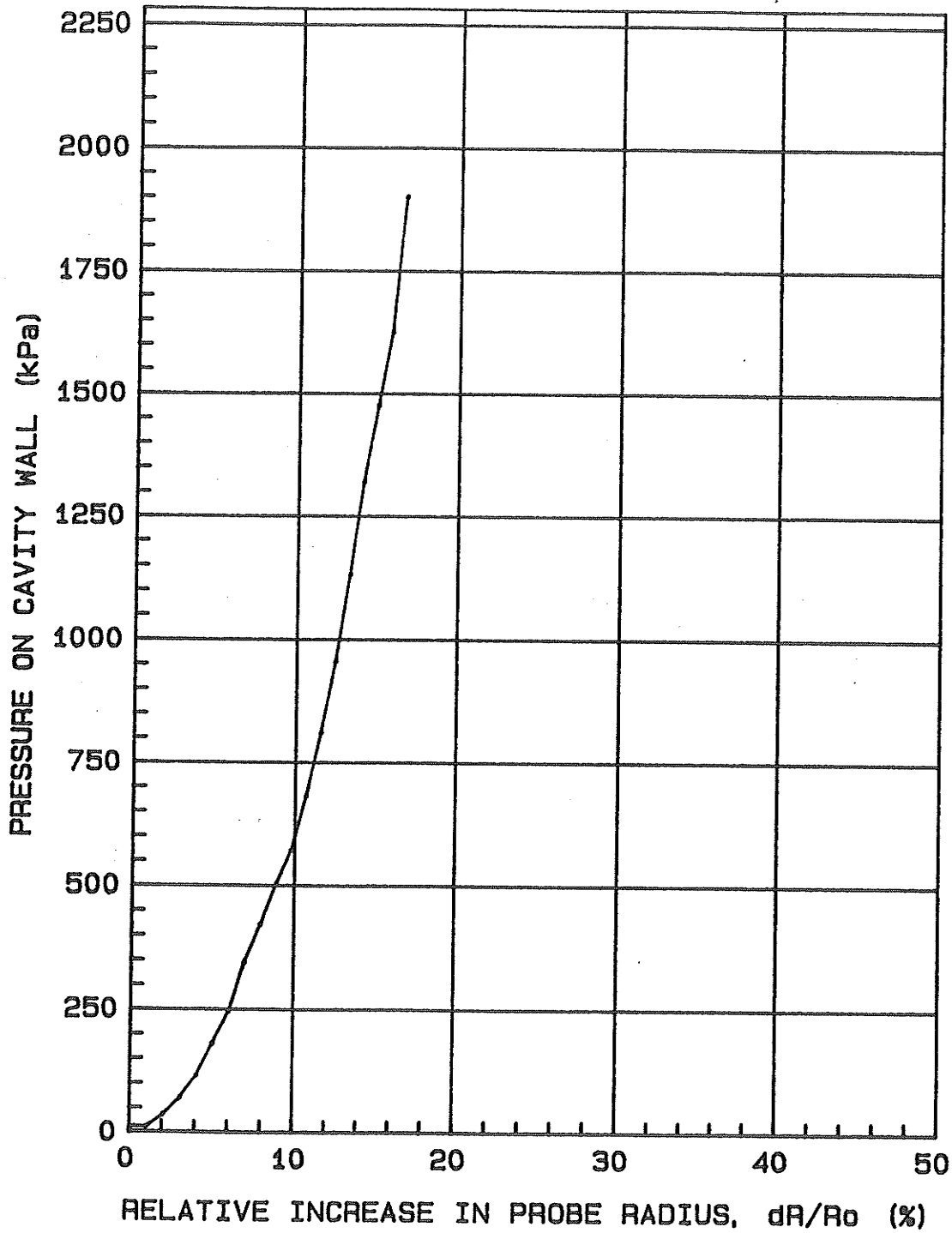
BRANDON: OCT. 85: HOLE# 10: RW 08-26: STA. 5+384: 3mL: 0.6 m

Po = 15.7 kPa      Eo = 1395 kPa  
P1 = 150 kPa      Er =            kPa  
P1\* = 134.3 kPa    Eo/P1\* = 10.3



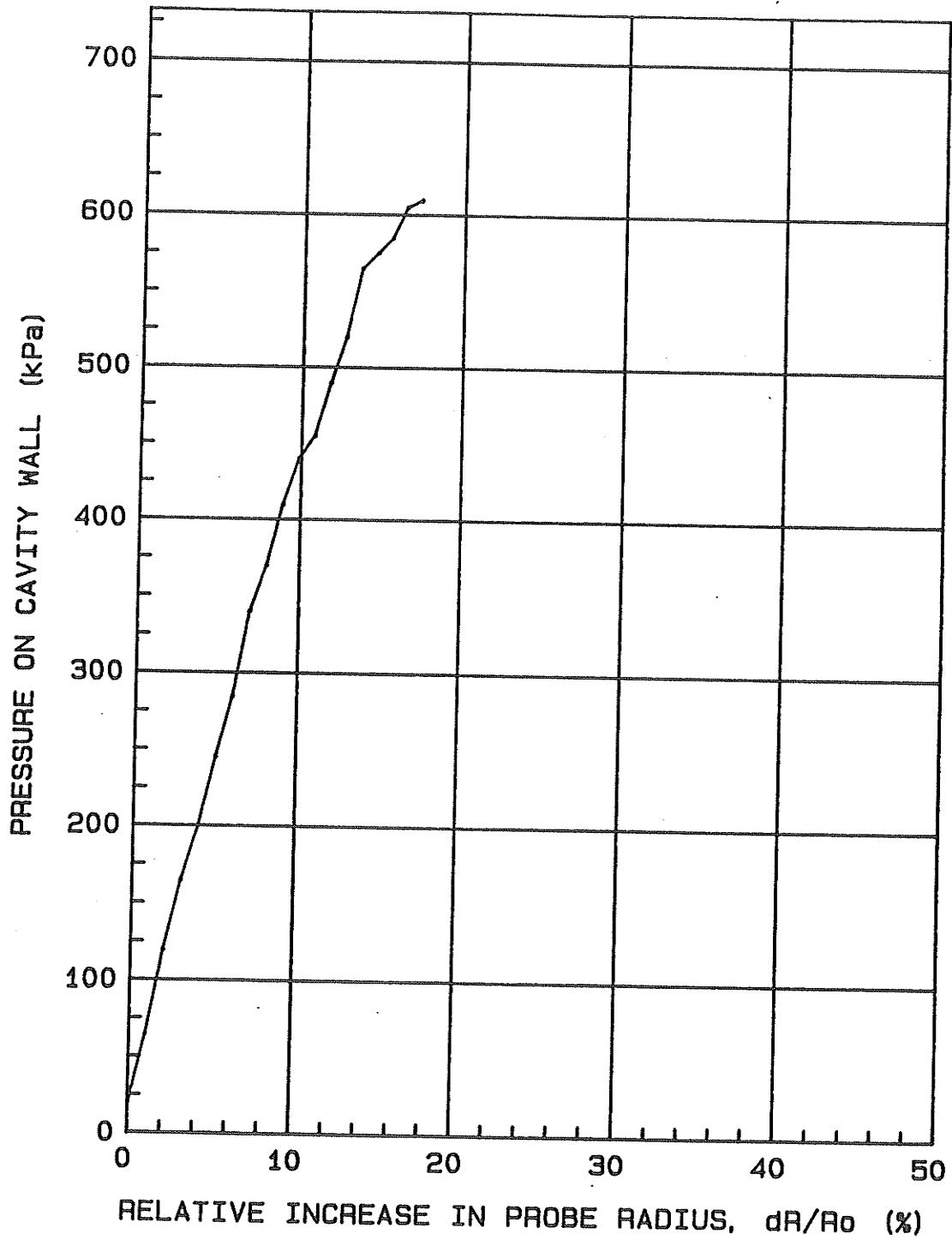
BRANDON: OCT. 85: HOLE# 10: RW 08-26: STA. 5+384: 3mL: 1.5 m

$P_0 = 6.3 \text{ kPa}$        $E_0 = 11378 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E^* = 29537 \text{ kPa}$   
 $P_1^* = \quad \quad \text{kPa}$        $E_0/P_1^* =$



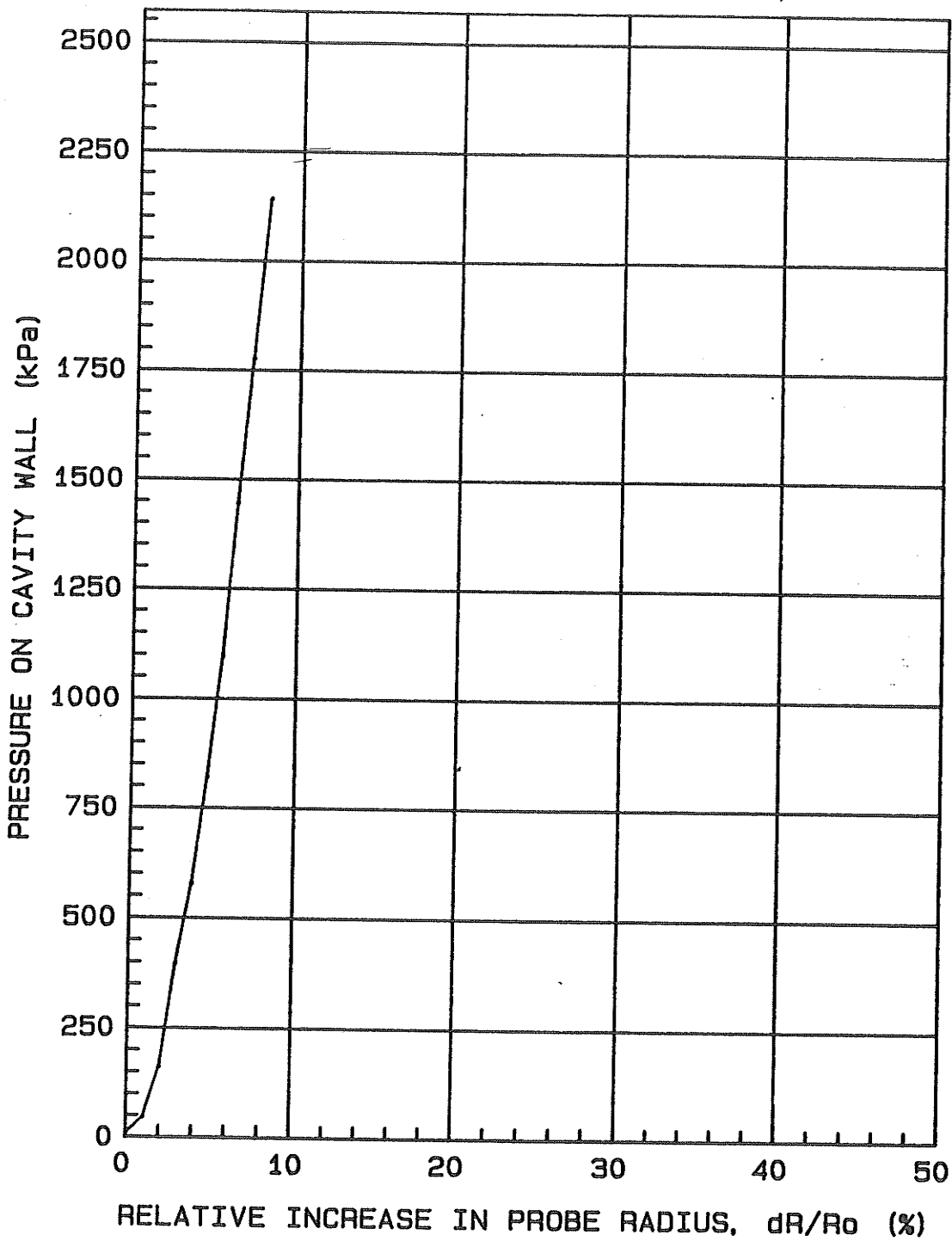
BRANDON: OCT. 85: HOLE# 11: RW 08-26: STA. 5+588: 3mL: 0.6 m

Po = 15.7 kPa      Eo = 6193 kPa  
P1 = 610 kPa      Er =            kPa  
P1\* = 594.3 kPa    Eo/P1\* = 10.4



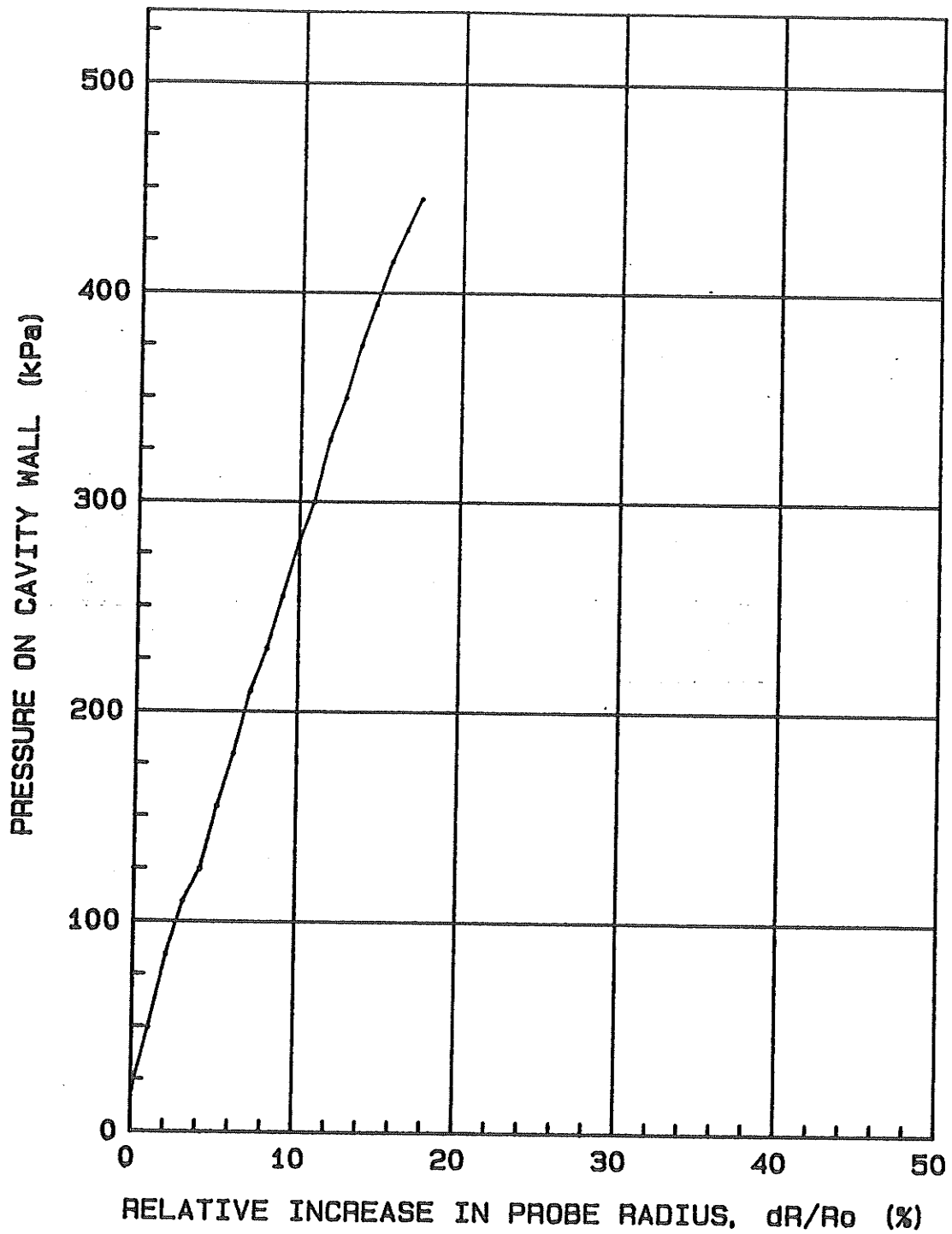
BRANDON: OCT. 85: HOLE# 11: RW 08-26: STA. 5+588: 3mL: 1.5 m

$P_o = 6.3 \text{ kPa}$        $E_o = 55600 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_1^* = \quad \quad \text{kPa}$        $E_o/P_1^* =$



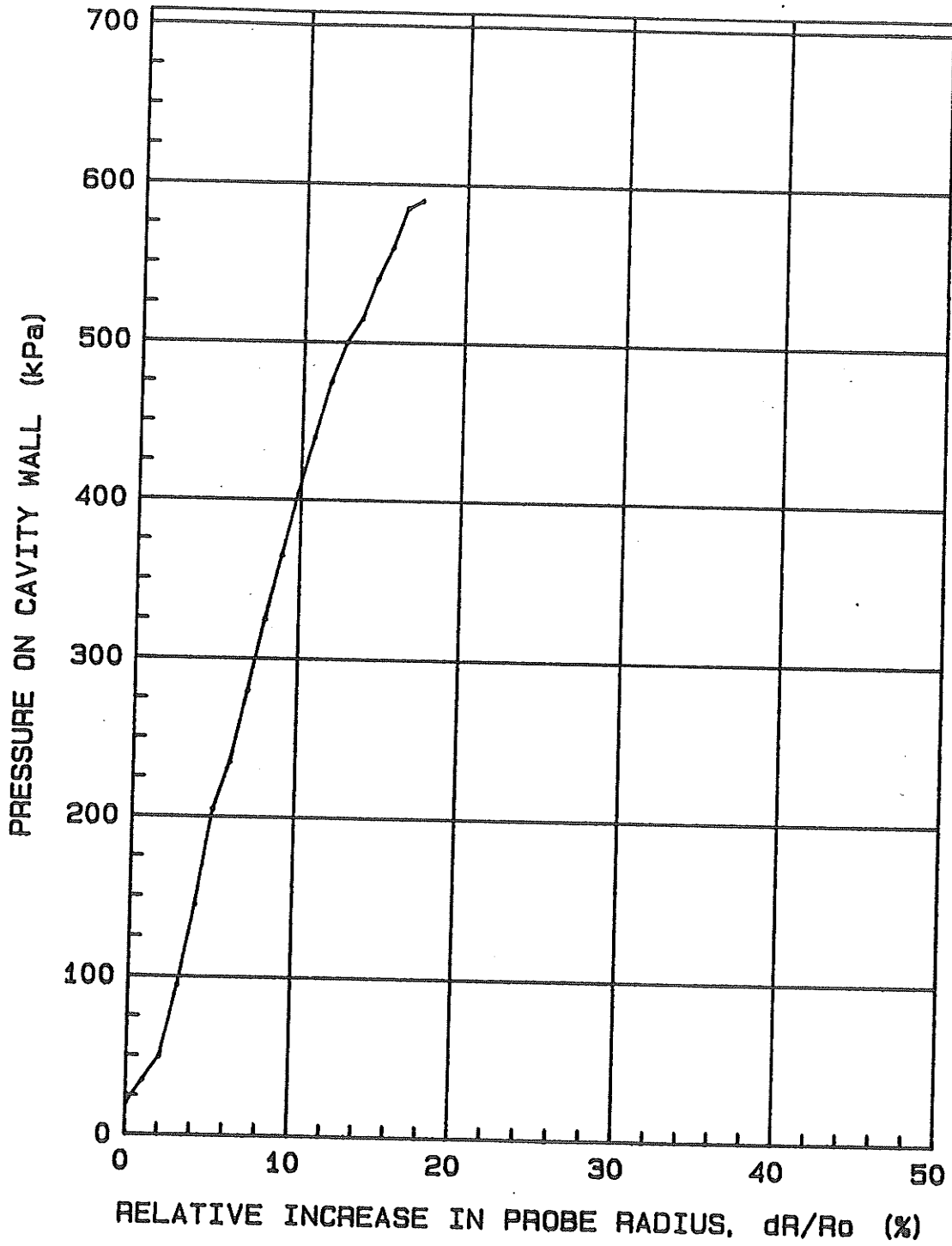
BRANDON: OCT. 85: HOLE# 12: RW 08-26: STA. 5+691: 3mR: 0.6 m

$P_0 = 15.7 \text{ kPa}$        $E_0 = 3737 \text{ kPa}$   
 $P_1 = 500 \text{ kPa}$        $E_r = \text{      kPa}$   
 $P_{1*} = 484.3 \text{ kPa}$      $E_0/P_{1*} = 7.7$



BRANDON: OCT. 85: HOLE# 12: RW 08-26: STA. 5+691: 3mR: 1.5 m

Po = 15.7 kPa      Eo = 6402 kPa  
P1 = 600 kPa      Er =            kPa  
P1\* = 584.3 kPa    Eo/P1\* = 10.9



BRANDON: OCT. 85: HOLE# 13: RW 08-26: STA. 5+895: 3mR: 1.5 m

Po = 6.3 kPa

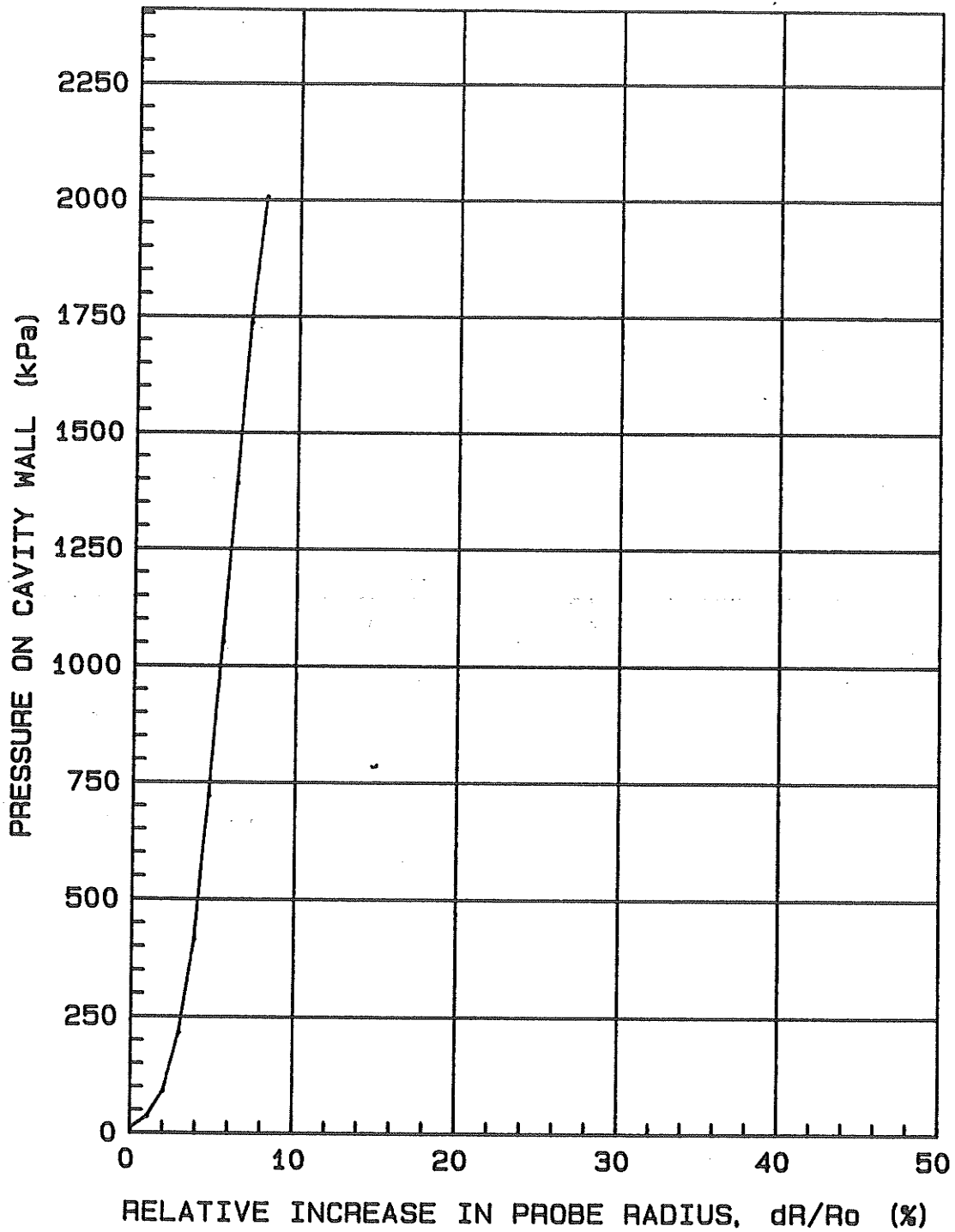
Eo = 58790 kPa

P1 = kPa

Er = kPa

P1\* = kPa

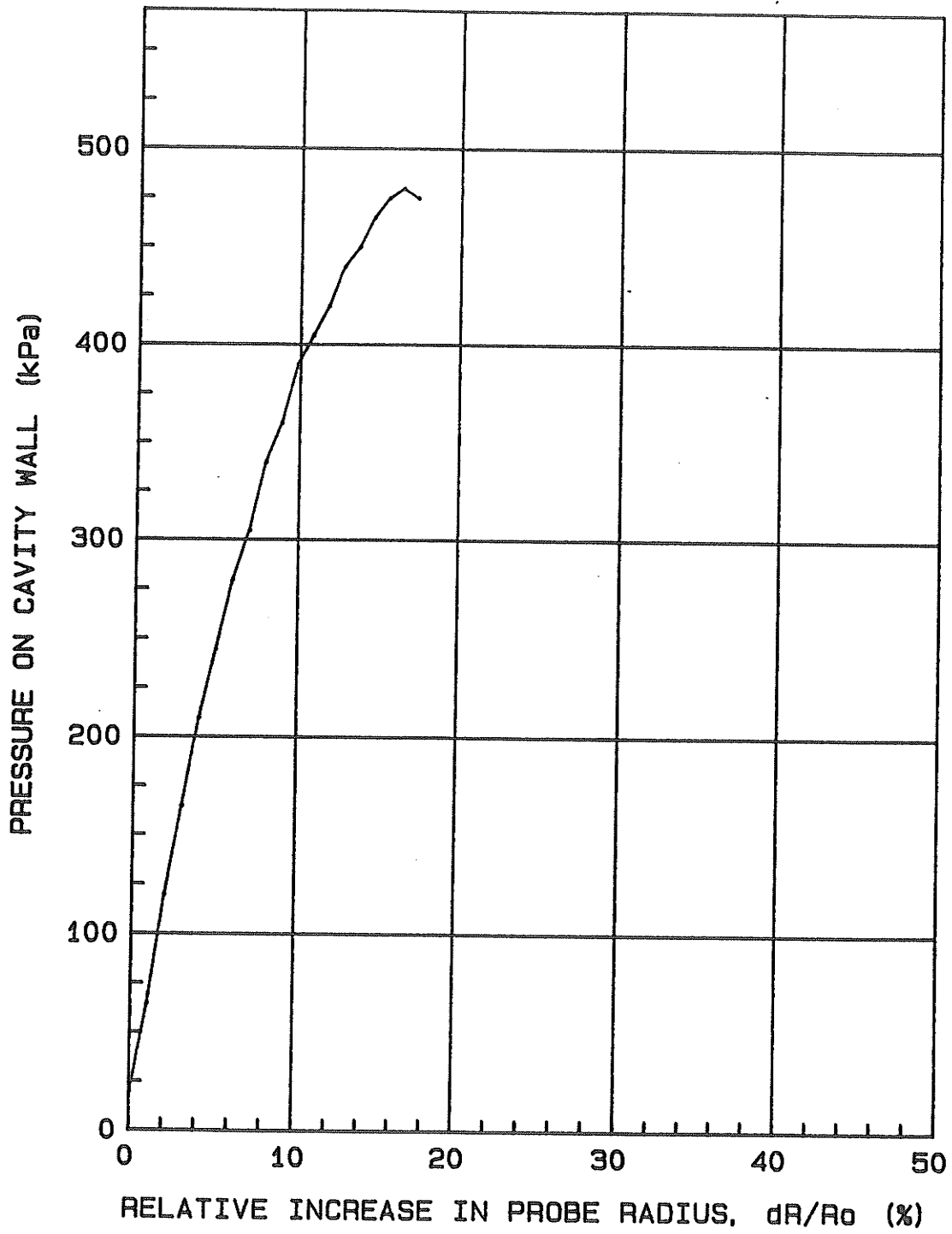
Eo/P1\* =



BRANDON: OCT. 85: HOLE# 14: RW 08-26: STA. 5+978: 3mL: 0.6 m

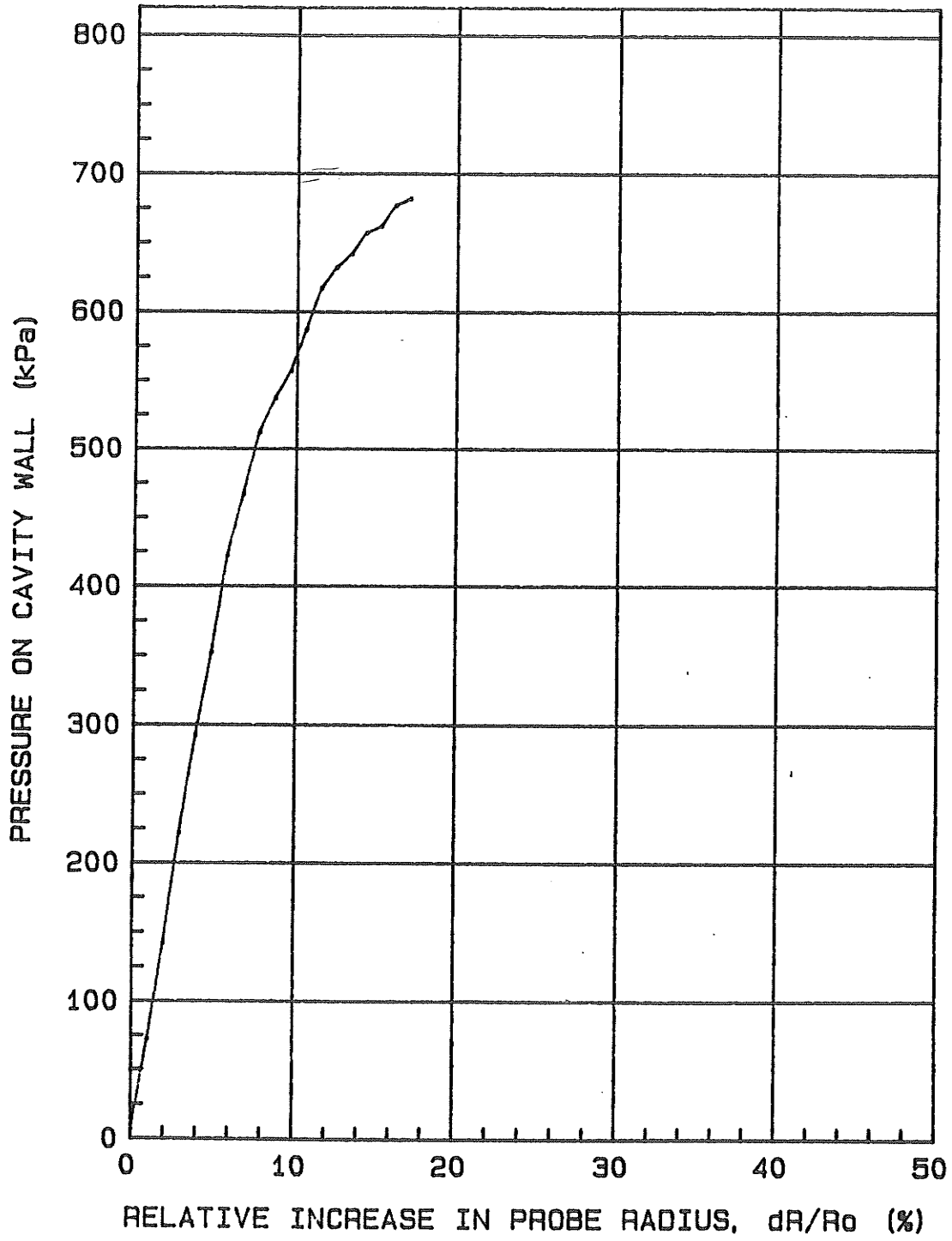


Po = 15.7 kPa      Eo = 5971 kPa  
P1 = 490 kPa      Er =            kPa  
P1\* = 474.3 kPa    Eo/P1\* = 12.5



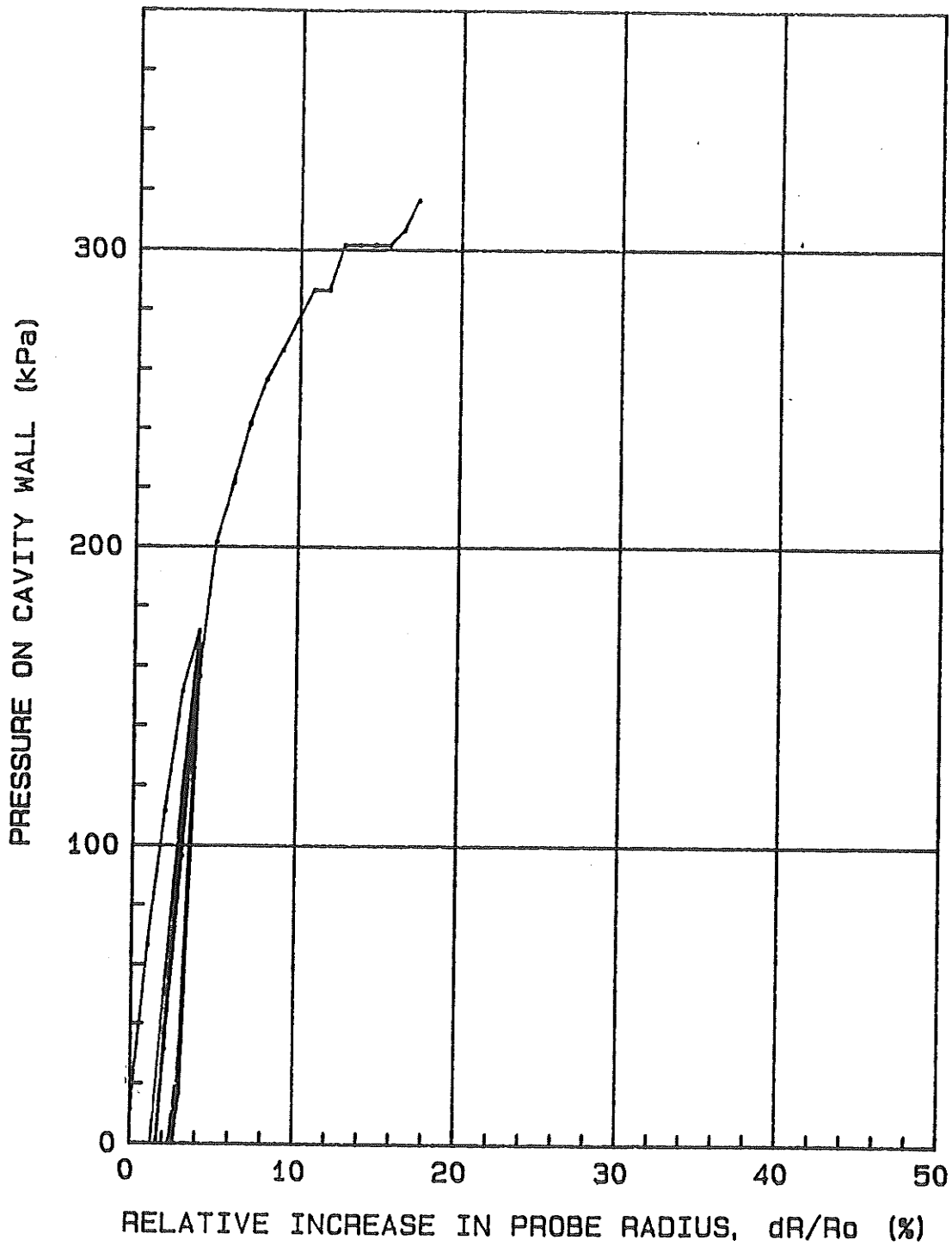
BRANDON: OCT. 85: HOLE# 14: RW 08-26: STA. 5+978: 3mL: 1.5 m

$P_0 = 2.6 \text{ kPa}$        $E_0 = 9823 \text{ kPa}$   
 $P_1 = 680 \text{ kPa}$        $E_r = \text{      kPa}$   
 $P_1^* = 677.4 \text{ kPa}$      $E_0/P_1^* = 14.5$



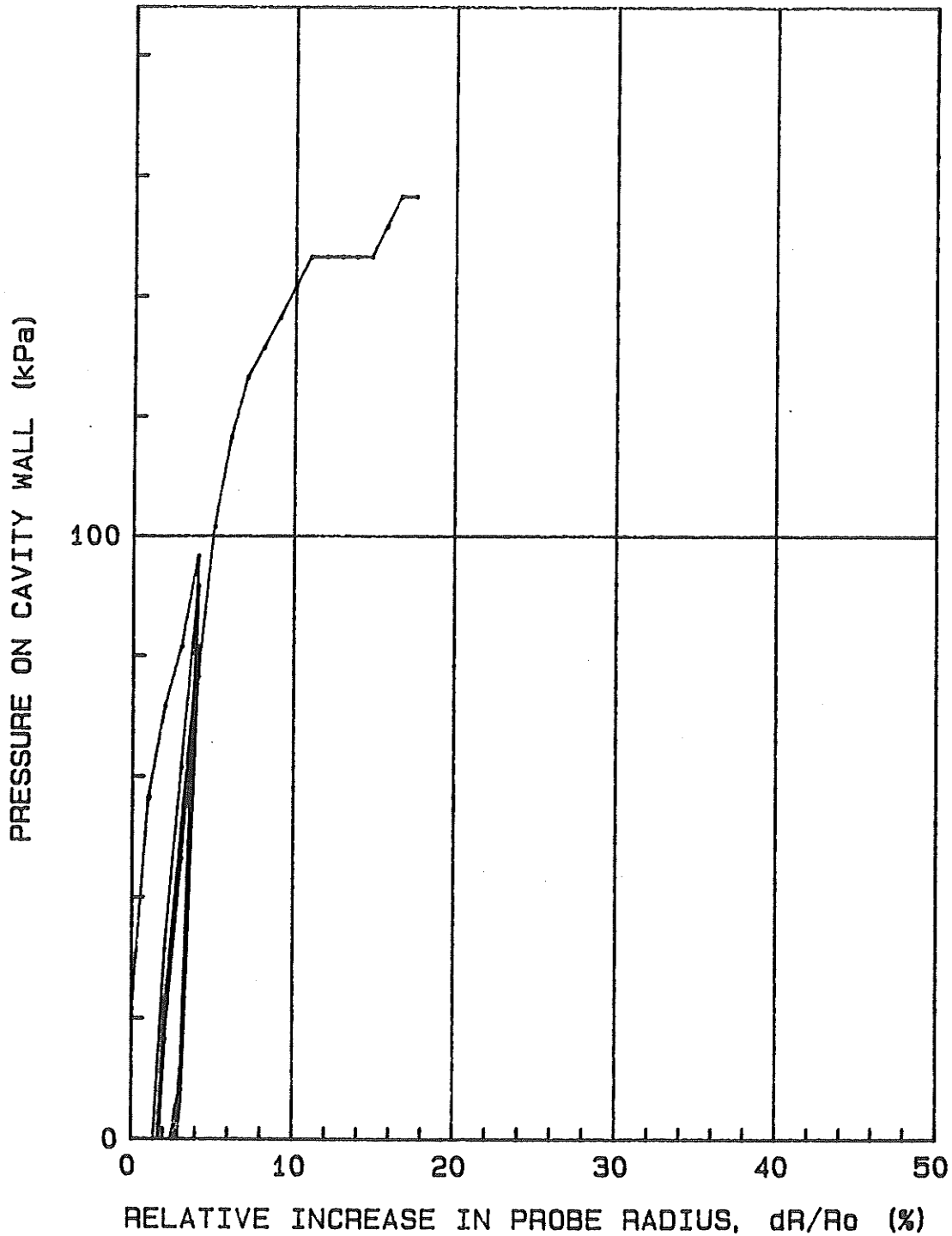
St. Andrew's R/W13-31: Nov/88: 5+030: 3mRt: Hole#1: 0.25m.

Po = 7.6 kPa      Eo = 7373 kPa  
P1 = 285 kPa      Er = 8851 kPa  
P1\* = 277.4 kPa    Eo/P1\* = 26.5



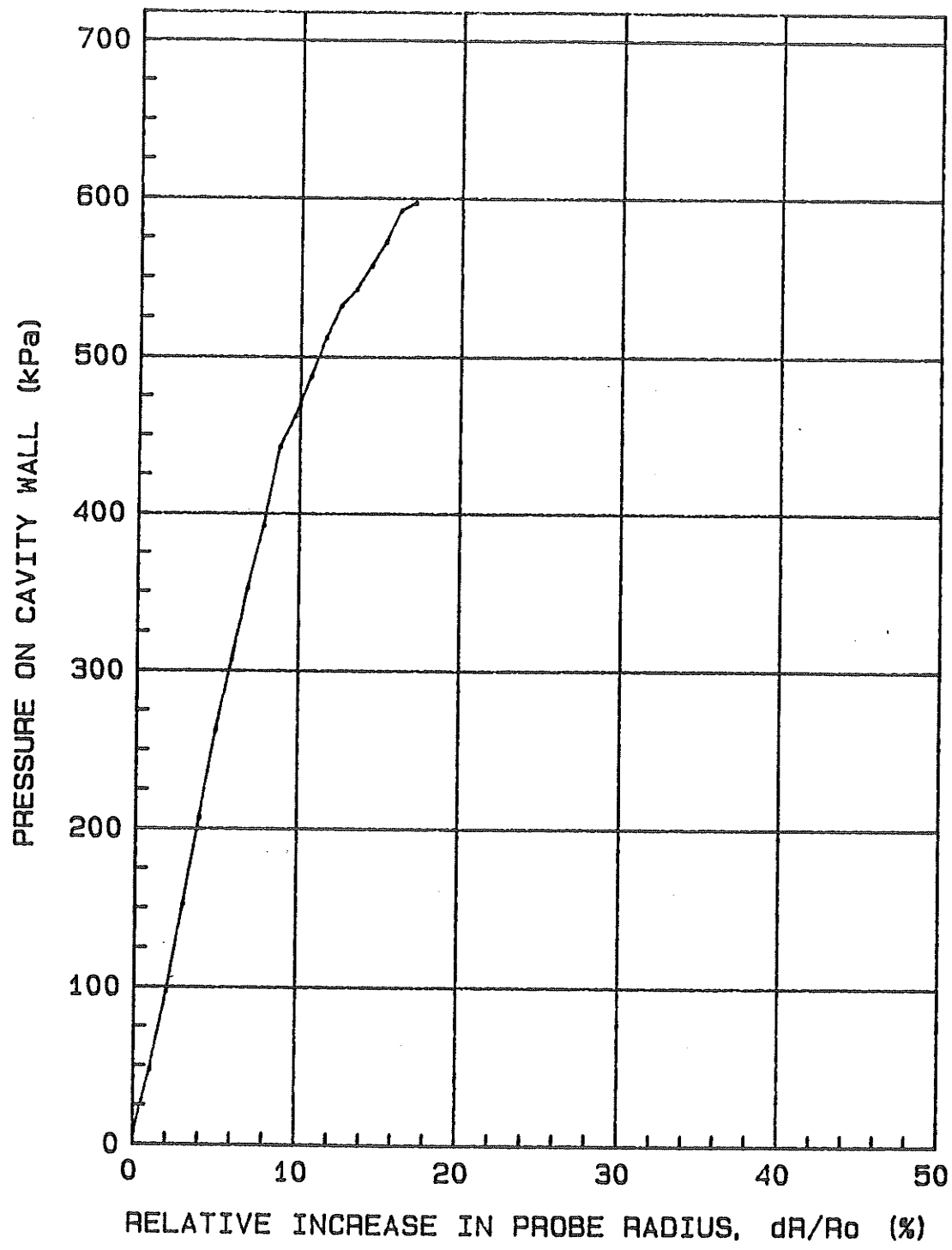
St. Andrew's R/W13-31: Nov/88: 5+030: 3mRt: Hole#1: 0.70m.

Po = 18.4 kPa      Eo = 4603 kPa  
P1 = 145 kPa      Er = 4121 kPa  
P1\* = 126.6 kPa    Eo/P1\* = 36.3



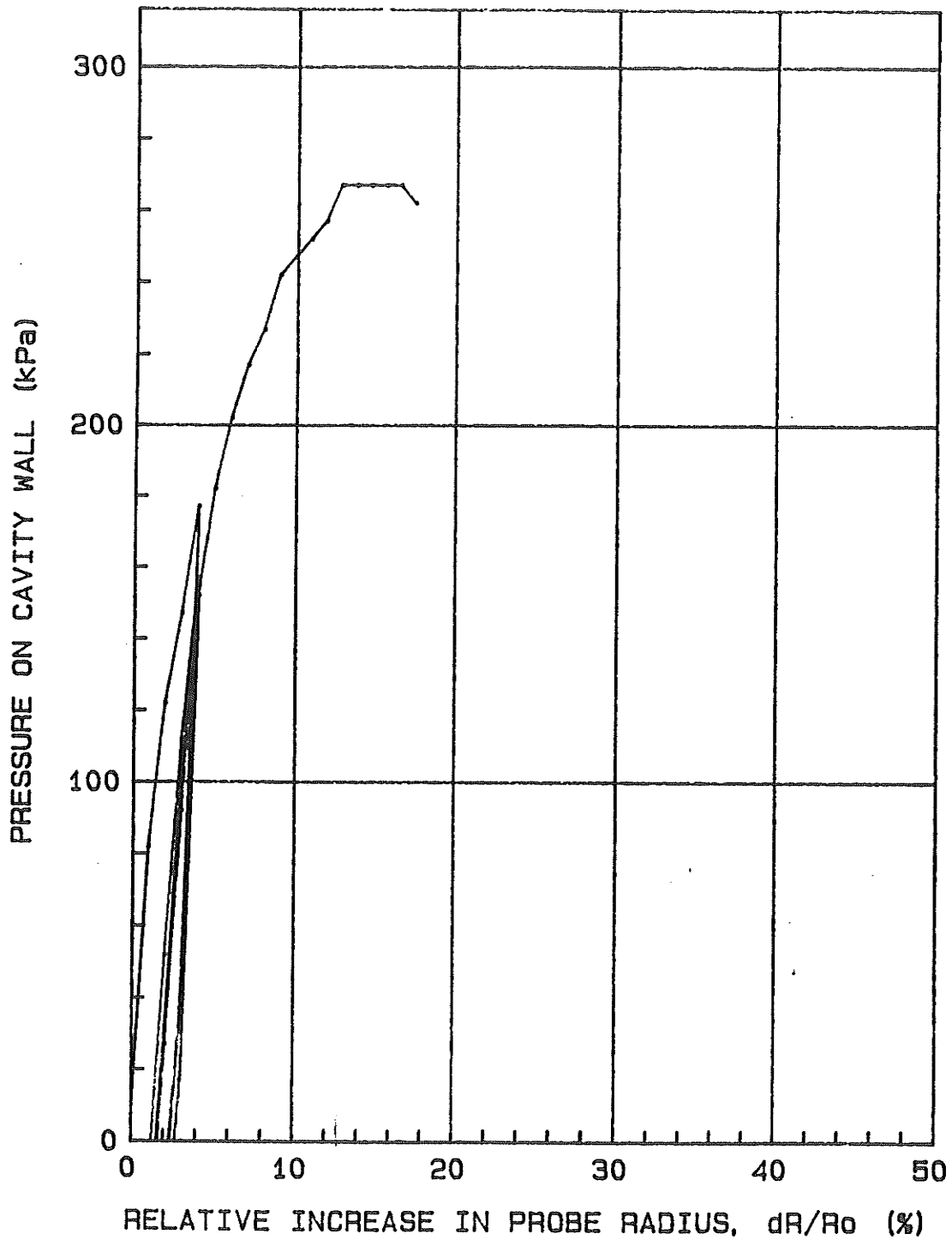
St. Andrew's R/W13-31: Nov/88: 5+030: 3mRt: Hole#1: 1.70m.

Po = 2.7 kPa      Eo = 6915 kPa  
P1 = 620 kPa      Er =            kPa  
P1\* = 617.3 kPa    Eo/P1\* = 11.2



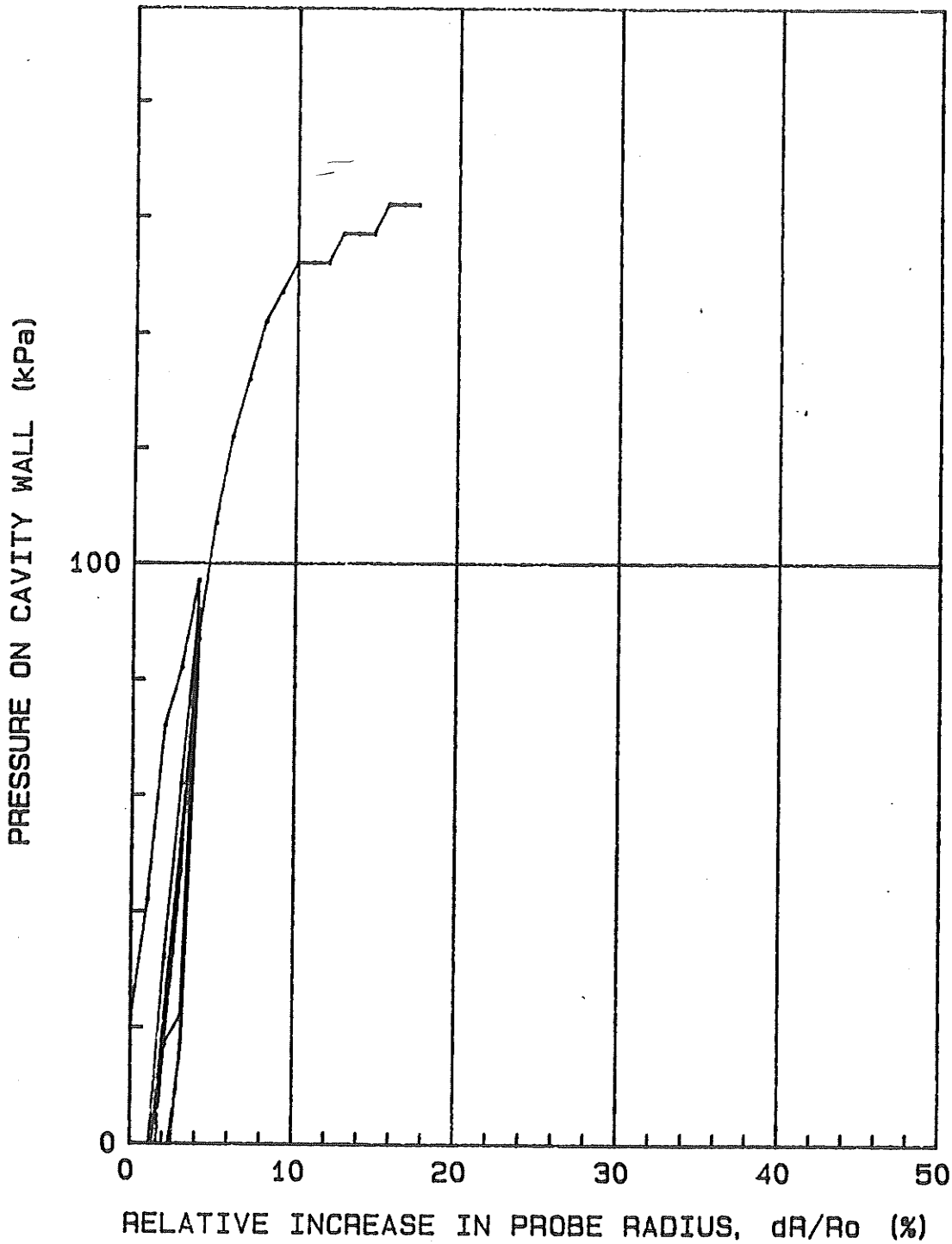
St. Andrew's R/W13-31: Nov/88: 5+120: 3mLt: Hole#2: 0.26m.

$P_0 = 8.100001 \text{ kPa}$   $E_0 = 9522 \text{ kPa}$   
 $P_1 = 270 \text{ kPa}$   $E_r = 8852 \text{ kPa}$   
 $P_1^* = 261.9 \text{ kPa}$   $E_0/P_1^* = 36.3$



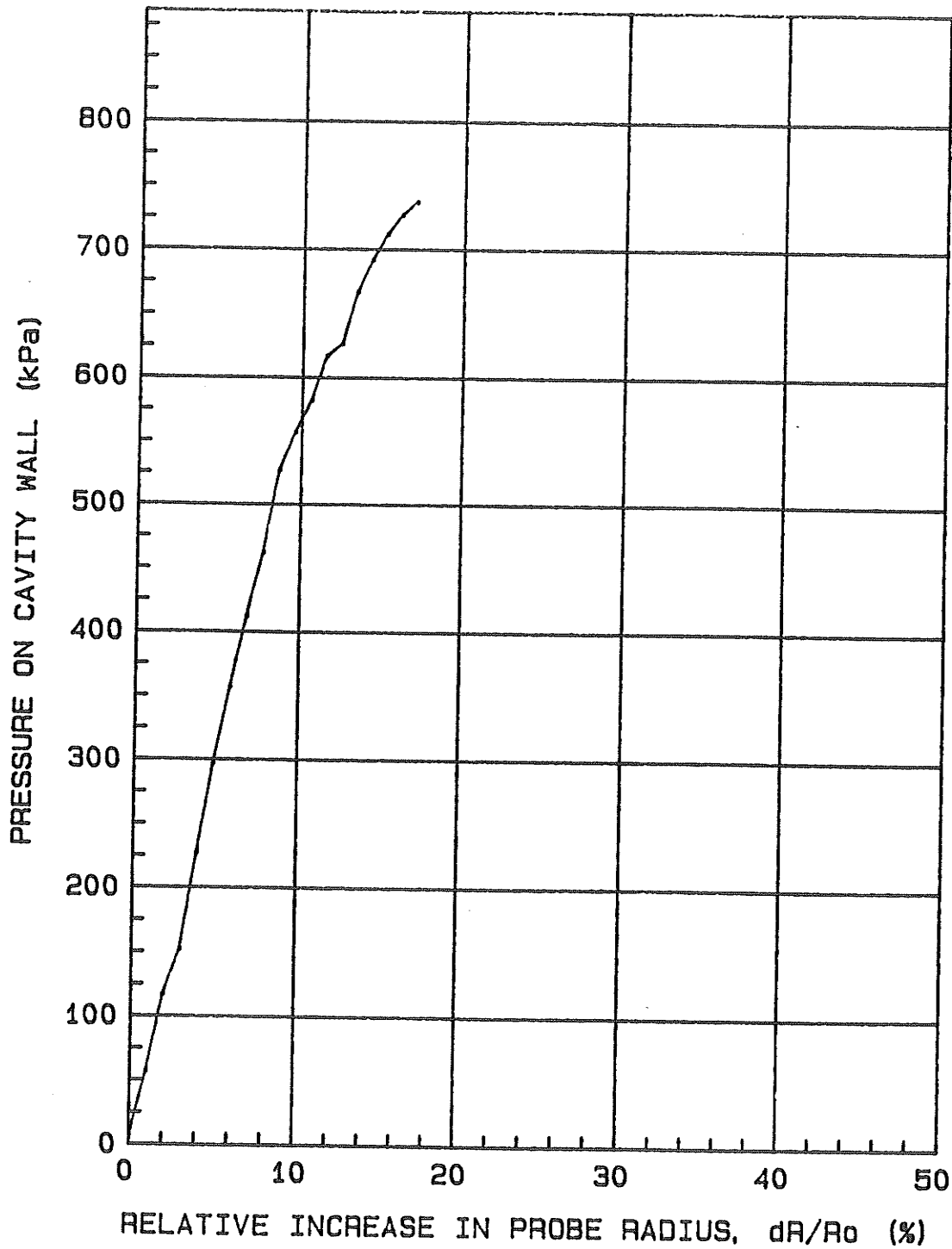
St. Andrew's R/W13-31: Nov/88: 5+120: 3mLt: Hole#2: 0.75m.

Po = 18.9 kPa      Eo = 4007 kPa  
P1 = 152.5 kPa     Er = 4831 kPa  
P1\* = 133.6 kPa    Eo/P1\* = 29.9



St. Andrew's R/W13-31: Nov/88: 5+120: 3mLt: Hole#2: 1.75m.

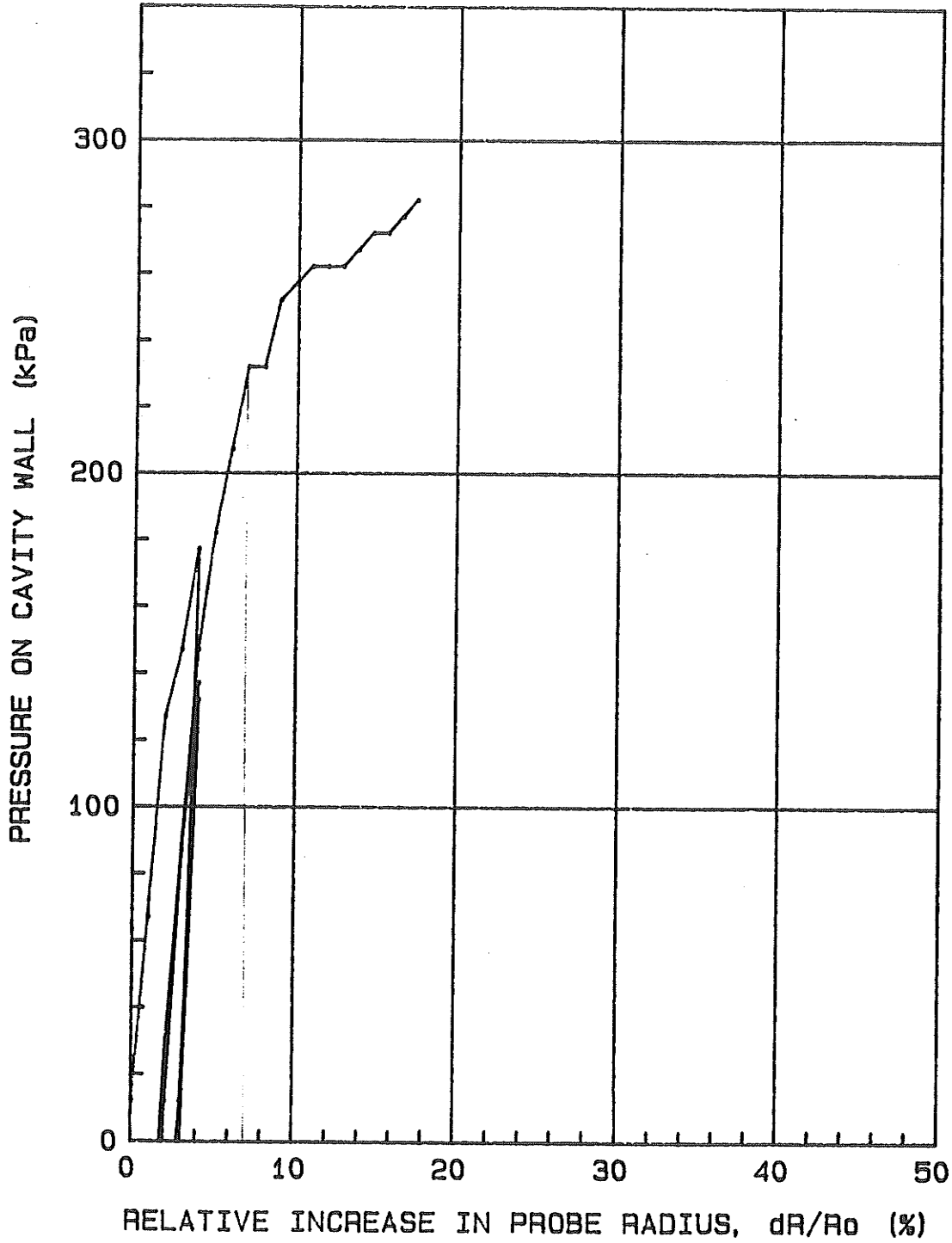
$P_0 = 2.6 \text{ kPa}$        $E_0 = 8335 \text{ kPa}$   
 $P_1 = 770 \text{ kPa}$        $E_r = \text{            kPa}$   
 $P_{1*} = 767.4 \text{ kPa}$      $E_0/P_{1*} = 10.8$



St. Andrew's R/W13-31: Nov/88: 5+210: 3mRt: Hole#3: 0.25m.

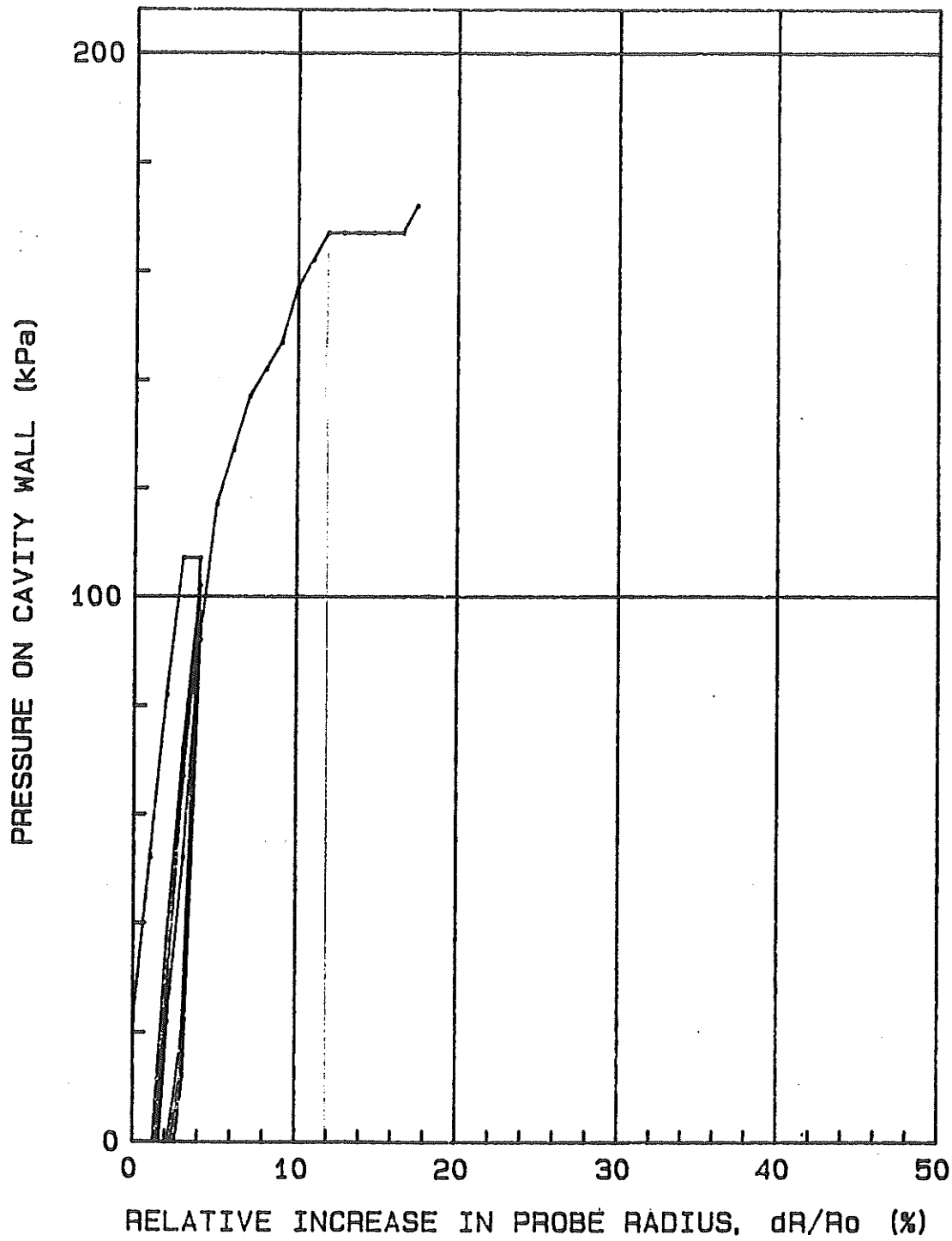


Po = 8.100001 kPa Eo = 7803 kPa  
P1 = 230 kPa Er = 9609 kPa  
P1\* = 221.9 kPa Eo/P1\* = 35.1



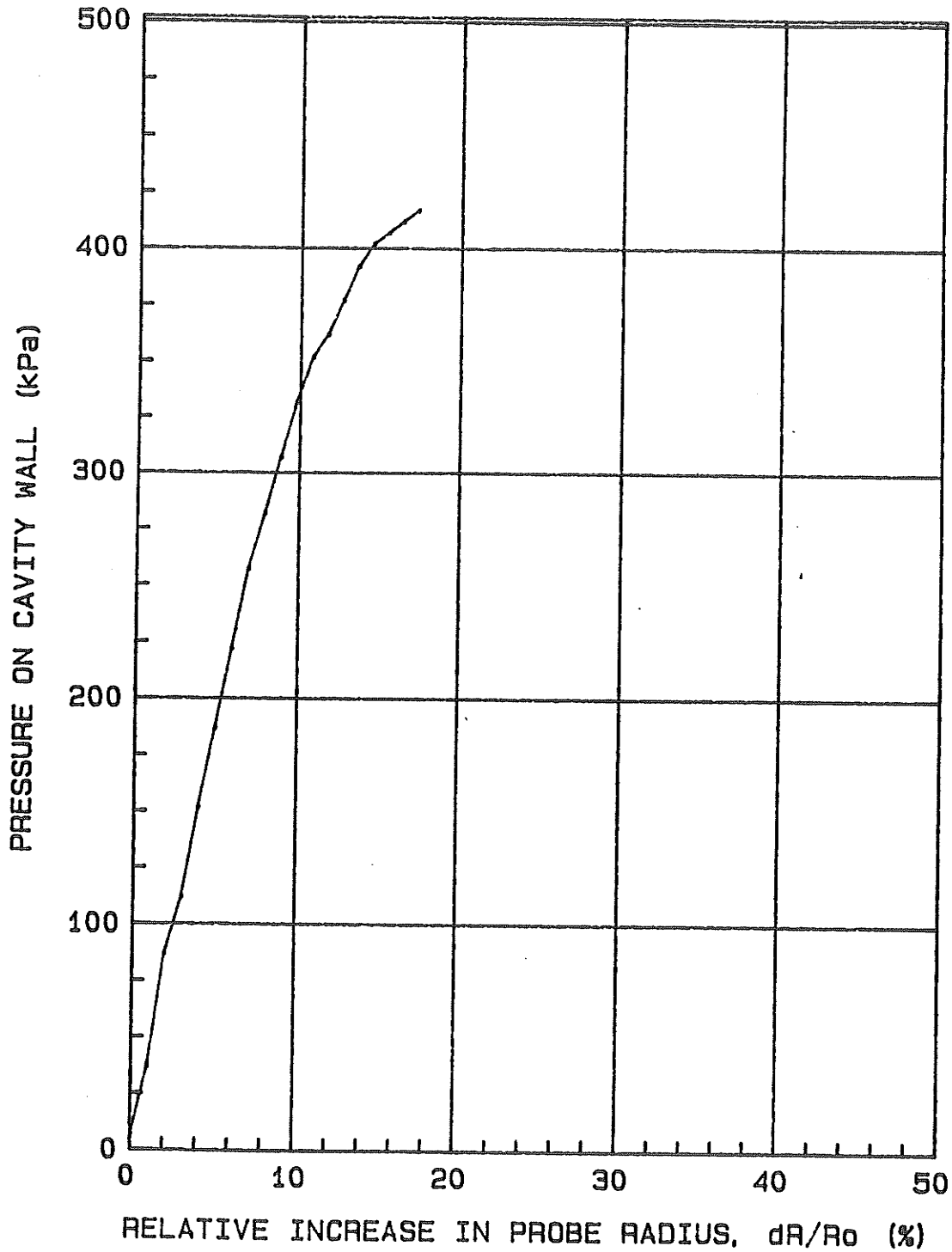
St. Andrew's R/W13-31: Nov/88: 5+210: 3mRt: Hole#3: 0.75m.

$P_0 = 18.9 \text{ kPa}$        $E_0 = 3778 \text{ kPa}$   
 $P_1 = 167.5 \text{ kPa}$      $E_r = 4831 \text{ kPa}$   
 $P_{1*} = 148.6 \text{ kPa}$      $E_0/P_{1*} = 25.4$



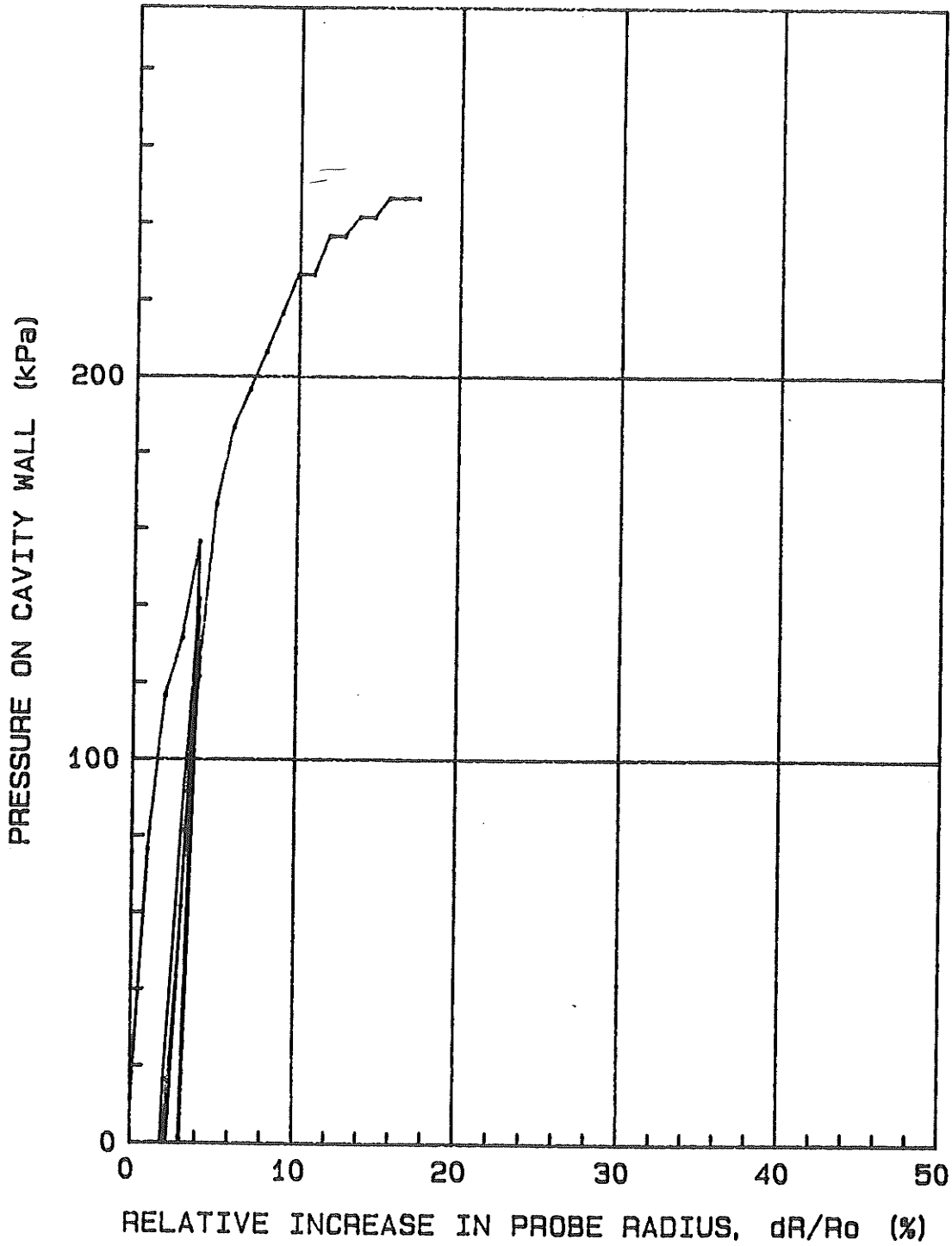
St. Andrew's R/W13-31: Nov/88: 5+210: 3mRt: Hole#3: 1.75m.

$P_0 = 2.4 \text{ kPa}$        $E_0 = 5166 \text{ kPa}$   
 $P_1 = 410 \text{ kPa}$        $E_r = \text{                      kPa}$   
 $P_{1*} = 407.6 \text{ kPa}$      $E_0/P_{1*} = 12.6$



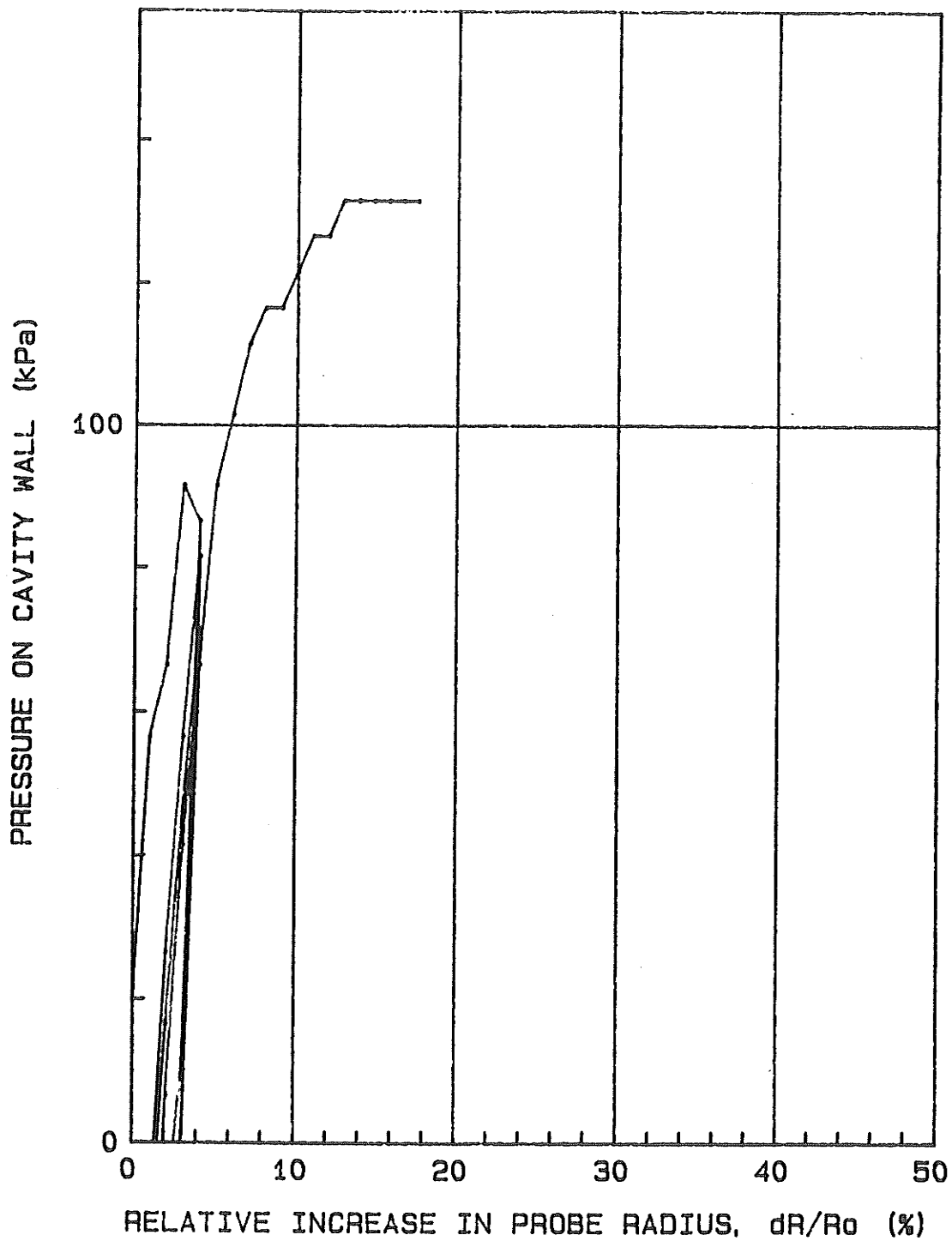
St. Andrew's R/W13-31: Nov/88: 5+300: 3mLt: Hole#4: 0.23m.

Po = 7.6 kPa      Eo = 8799 kPa  
P1 = 225 kPa      Er = 9234 kPa  
P1\* = 217.4 kPa    Eo/P1\* = 40.4



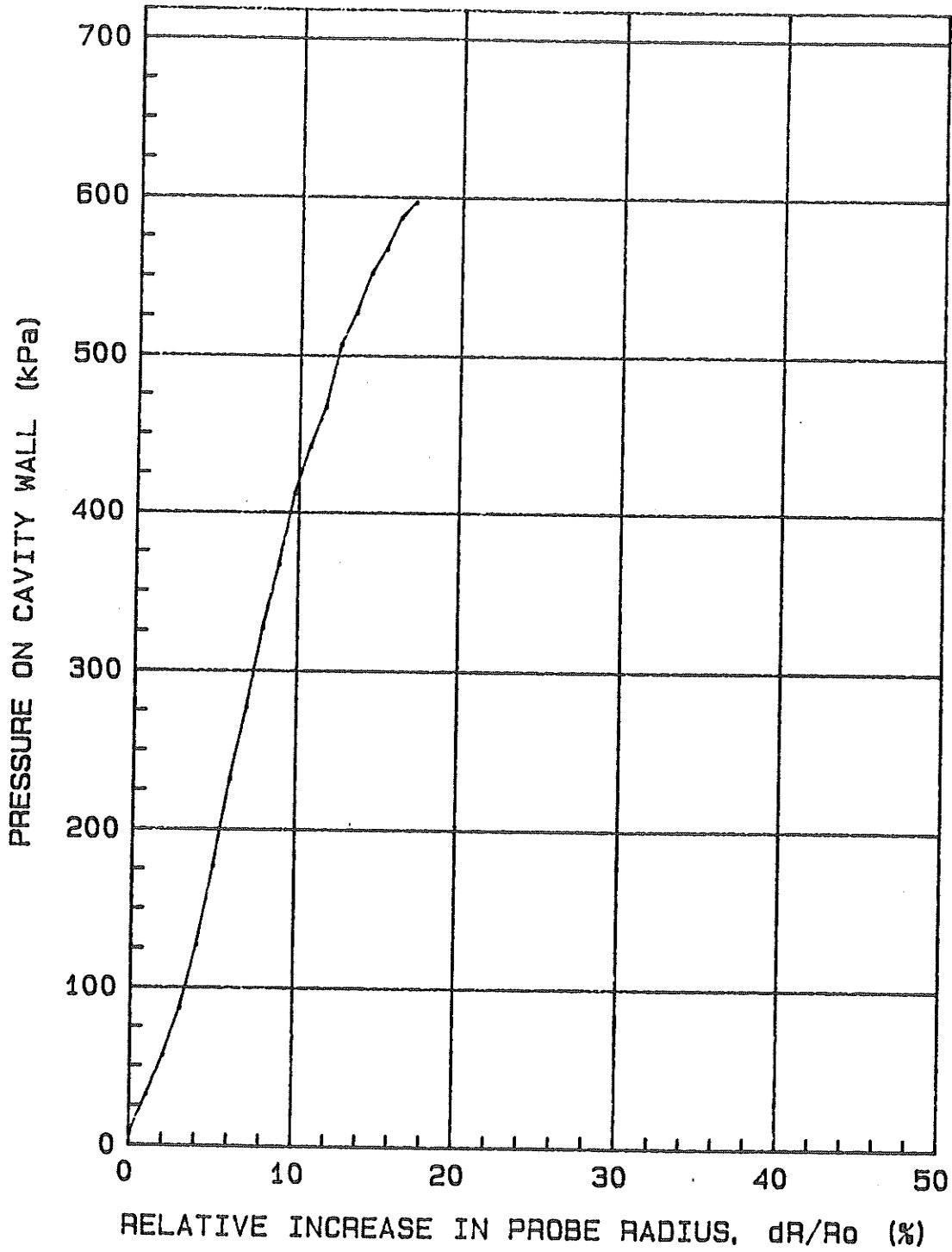
St. Andrew's R/W13-31: Nov/88: 5+300: 3mLt: Hole#4: 0.70m.

$P_0 = 18.4 \text{ kPa}$        $E_0 = 4603 \text{ kPa}$   
 $P_1 = 117.5 \text{ kPa}$        $E_r = 3916 \text{ kPa}$   
 $P_{1*} = 99.1 \text{ kPa}$        $E_0/P_{1*} = 46.4$



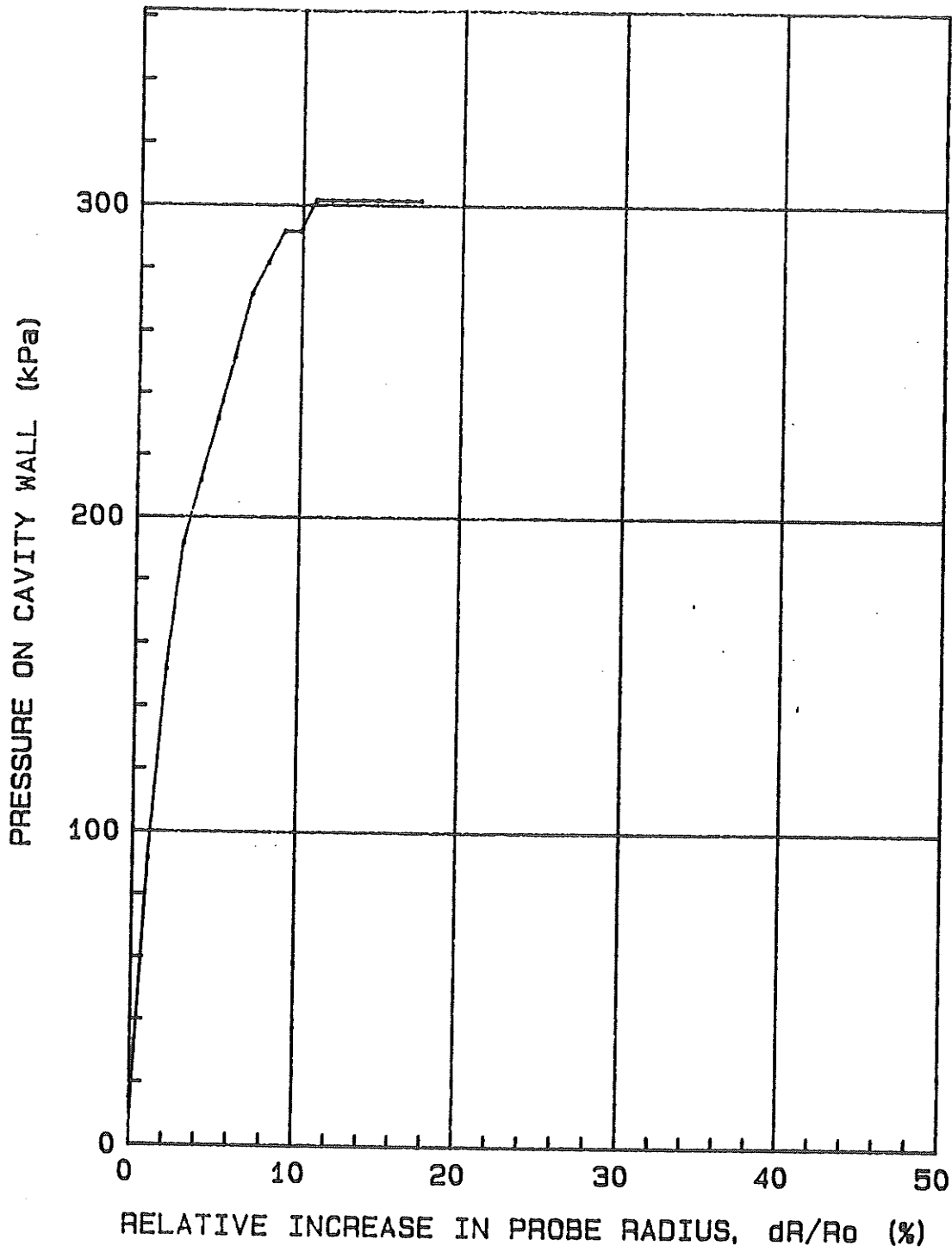
St. Andrew's R/W13-31: Nov/88: 5+300: 3mLt: Hole#4: 1.70m.

$P_0 = 2.4 \text{ kPa}$        $E_0 = 7087 \text{ kPa}$   
 $P_1 = 630 \text{ kPa}$        $E_r = \text{      kPa}$   
 $P_1^* = 627.6 \text{ kPa}$      $E_0/P_1^* = 11.2$



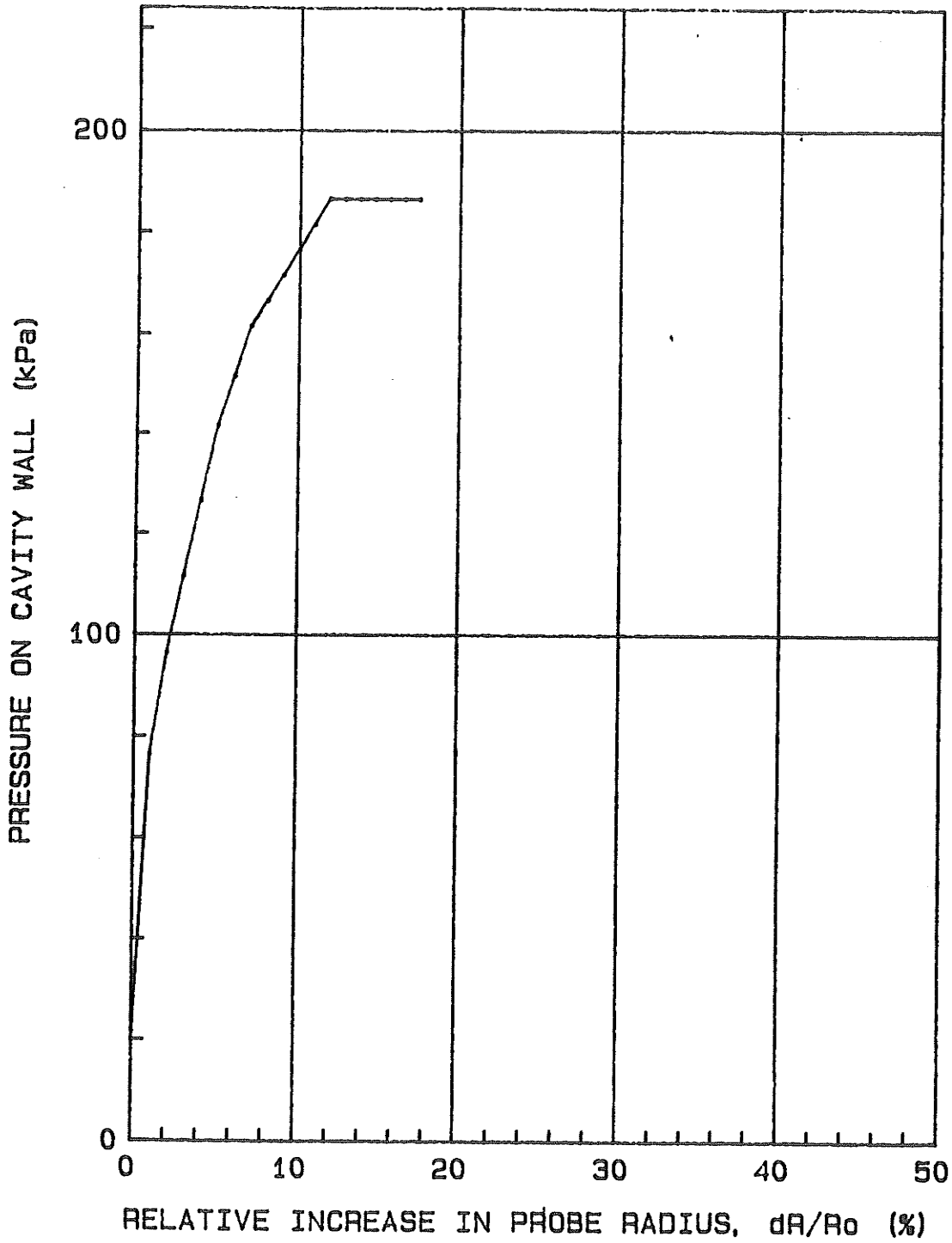
St. Andrew's R/W13-31: Nov/88: 5+390: 3mRt: Hole#5: 0.23m.

$P_0 = 7.6 \text{ kPa}$        $E_0 = 10990 \text{ kPa}$   
 $P_1 = 290 \text{ kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_1^* = 282.4 \text{ kPa}$      $E_0/P_1^* = 38.9$



St. Andrew's R/W13-31: Nov/88: 5+390: 3mRt: Hole#5: 0.70m.

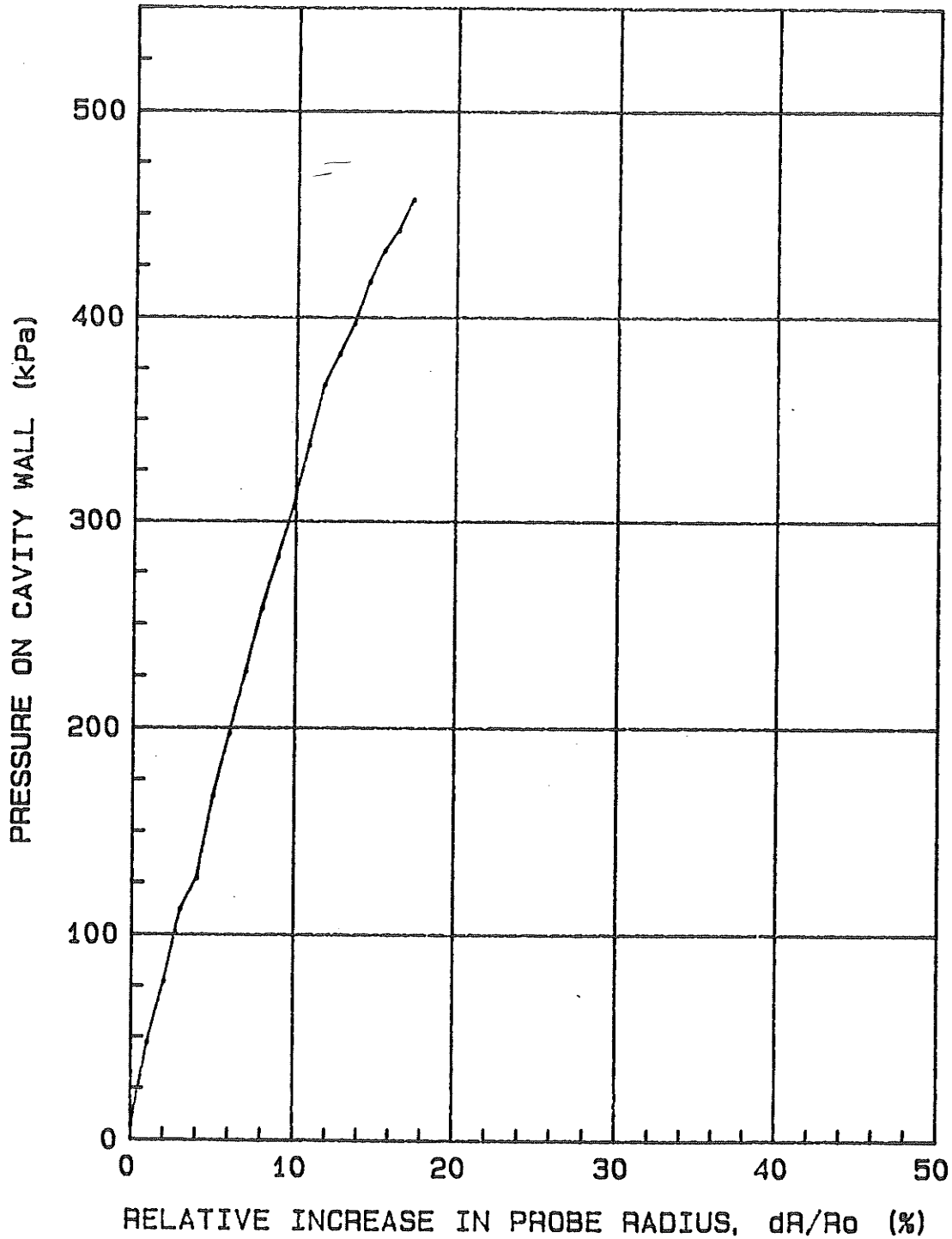
Po = 18.4 kPa      Eo = 7373 kPa  
P1 = 185 kPa      Er =            kPa  
P1\* = 166.6 kPa    Eo/P1\* = 44.2



St. Andrew's R/W13-31: Nov/88: 5+390: 3mRt: Hole#5: 1.70m.

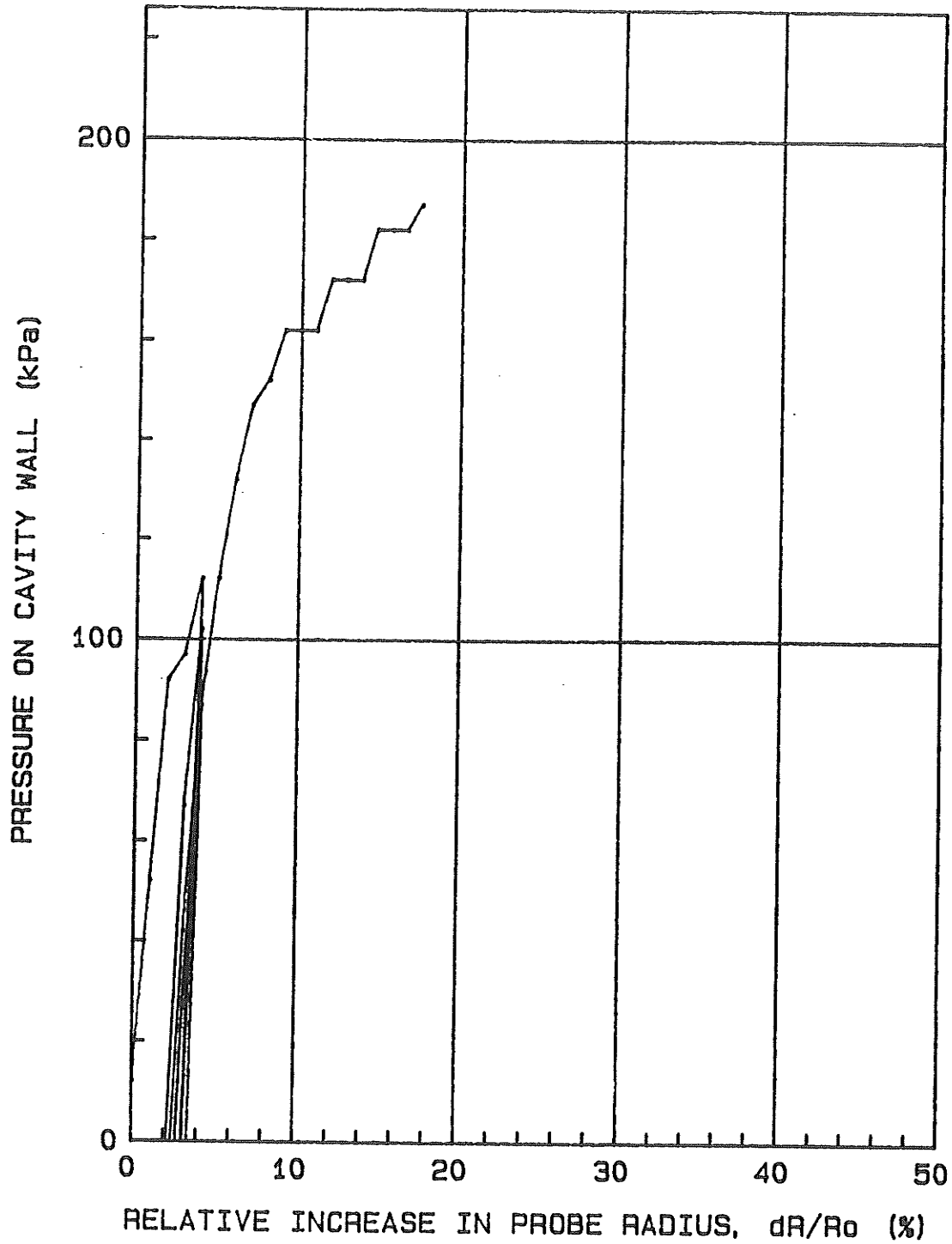


$P_0 = 2.6 \text{ kPa}$        $E_0 = 4696 \text{ kPa}$   
 $P_1 = 600 \text{ kPa}$        $E_r = \text{      kPa}$   
 $P_1^* = 597.4 \text{ kPa}$      $E_0/P_1^* = 7.8$



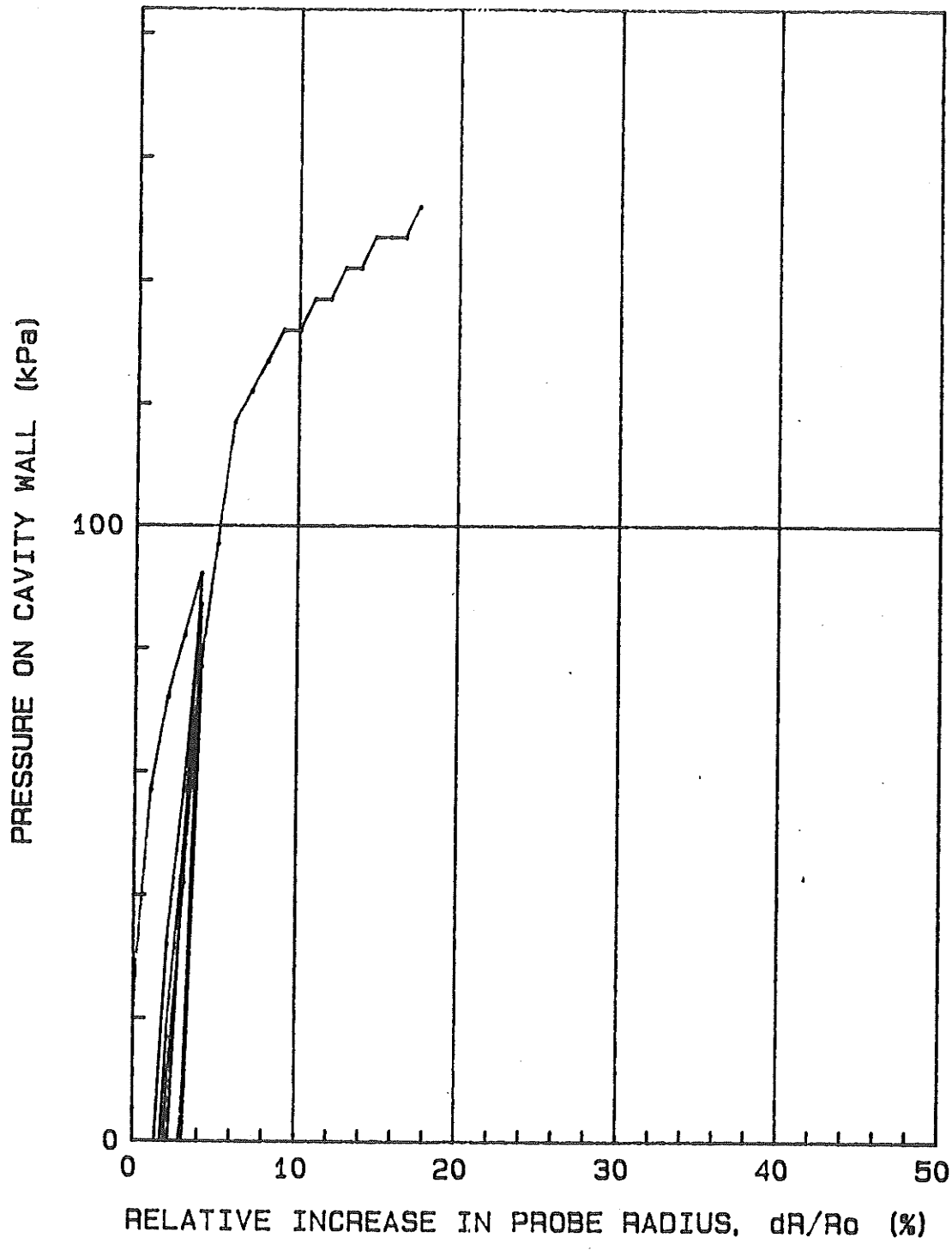
St. Andrew's R/W13-31: Nov/88: 5+480: 3mLt: Hole#6: 0.25m.

Po = 8.100001 kPa Eo = 5339 kPa  
P1 = 162.5 kPa Er = 8546 kPa  
P1\* = 154.4 kPa Eo/P1\* = 34.5



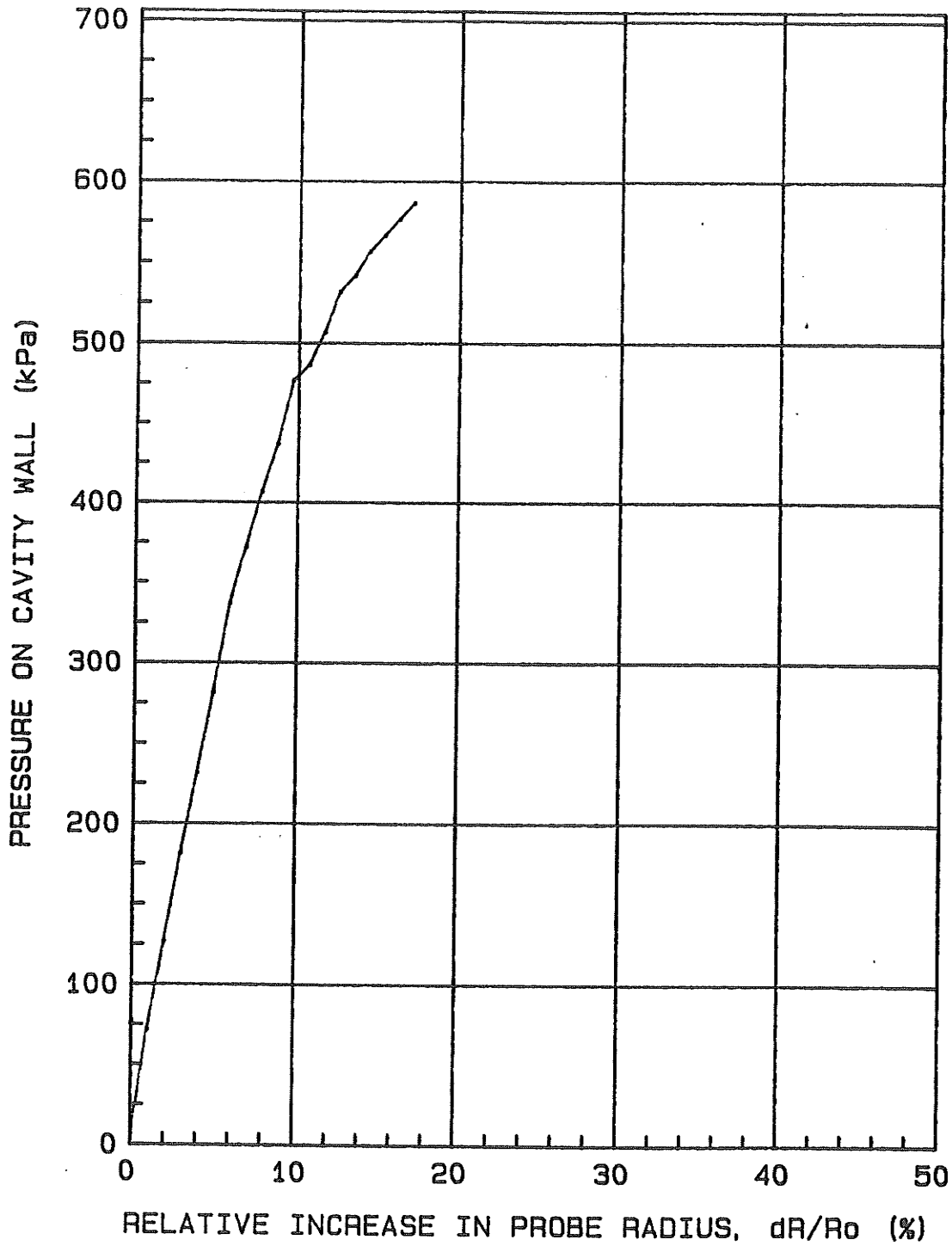
St. Andrew's R/W13-31: Nov/88: 5+480: 3mLt: Hole#6: 0.75m.

Po = 18.9 kPa      Eo = 4603 kPa  
P1 = 132.5 kPa     Er = 4832 kPa  
P1\* = 113.6 kPa    Eo/P1\* = 40.5



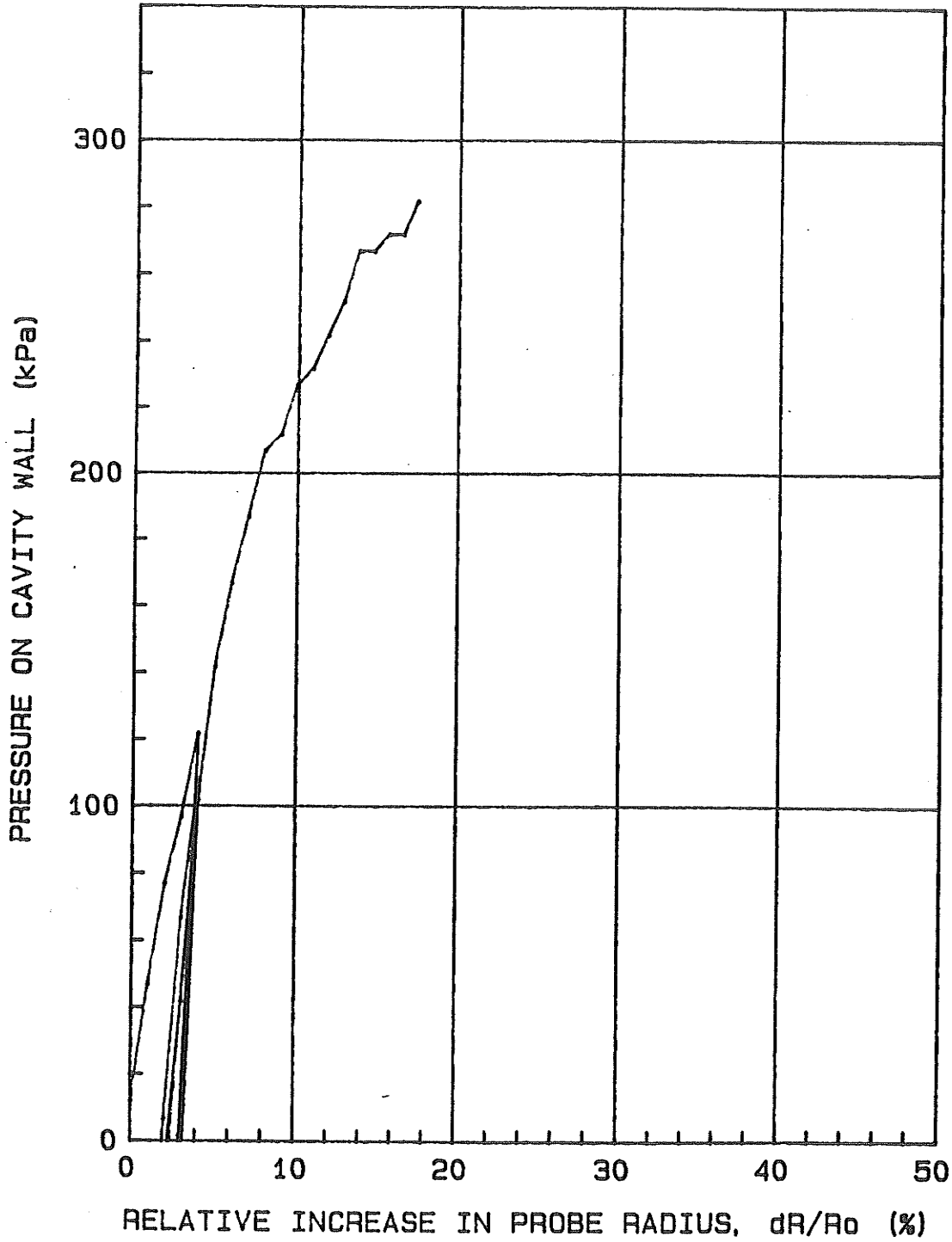
St. Andrew's R/W13-31: Nov/88: 5+480: 3mLt: Hole#6: 1.75m.

$P_0 = 2.3 \text{ kPa}$        $E_0 = 7709 \text{ kPa}$   
 $P_1 = 620 \text{ kPa}$        $E_r = \text{            kPa}$   
 $P_{1*} = 617.7 \text{ kPa}$      $E_0/P_{1*} = 12.4$



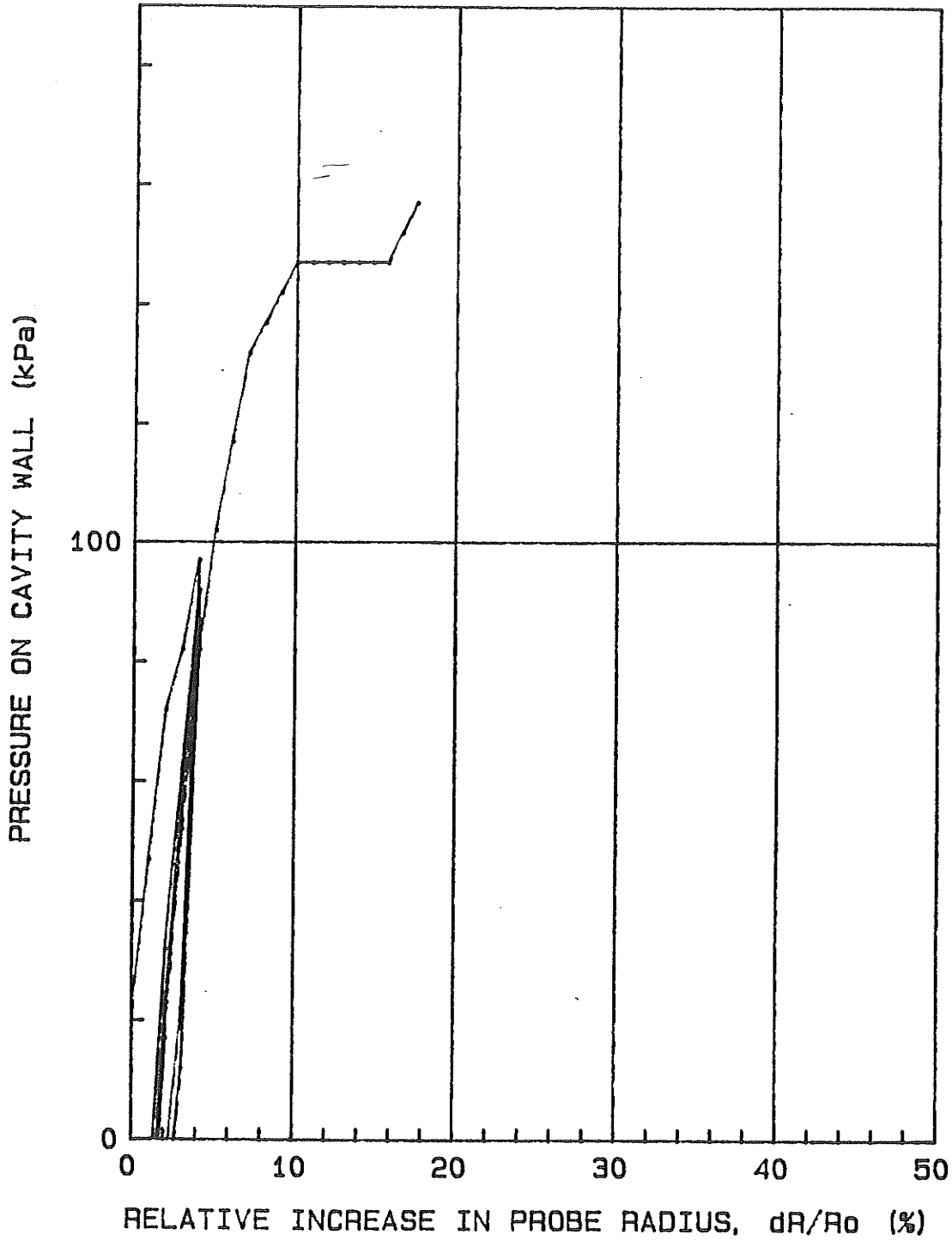
St. Andrew's R/W13-31: Nov/88: 5+570: 3mRt: Hole#7: 0.22m.

$P_0 = 7.9 \text{ kPa}$        $E_0 = 4307 \text{ kPa}$   
 $P_1 = 270 \text{ kPa}$        $E_r = 8485 \text{ kPa}$   
 $P_1^* = 262.1 \text{ kPa}$      $E_0/P_1^* = 16.4$



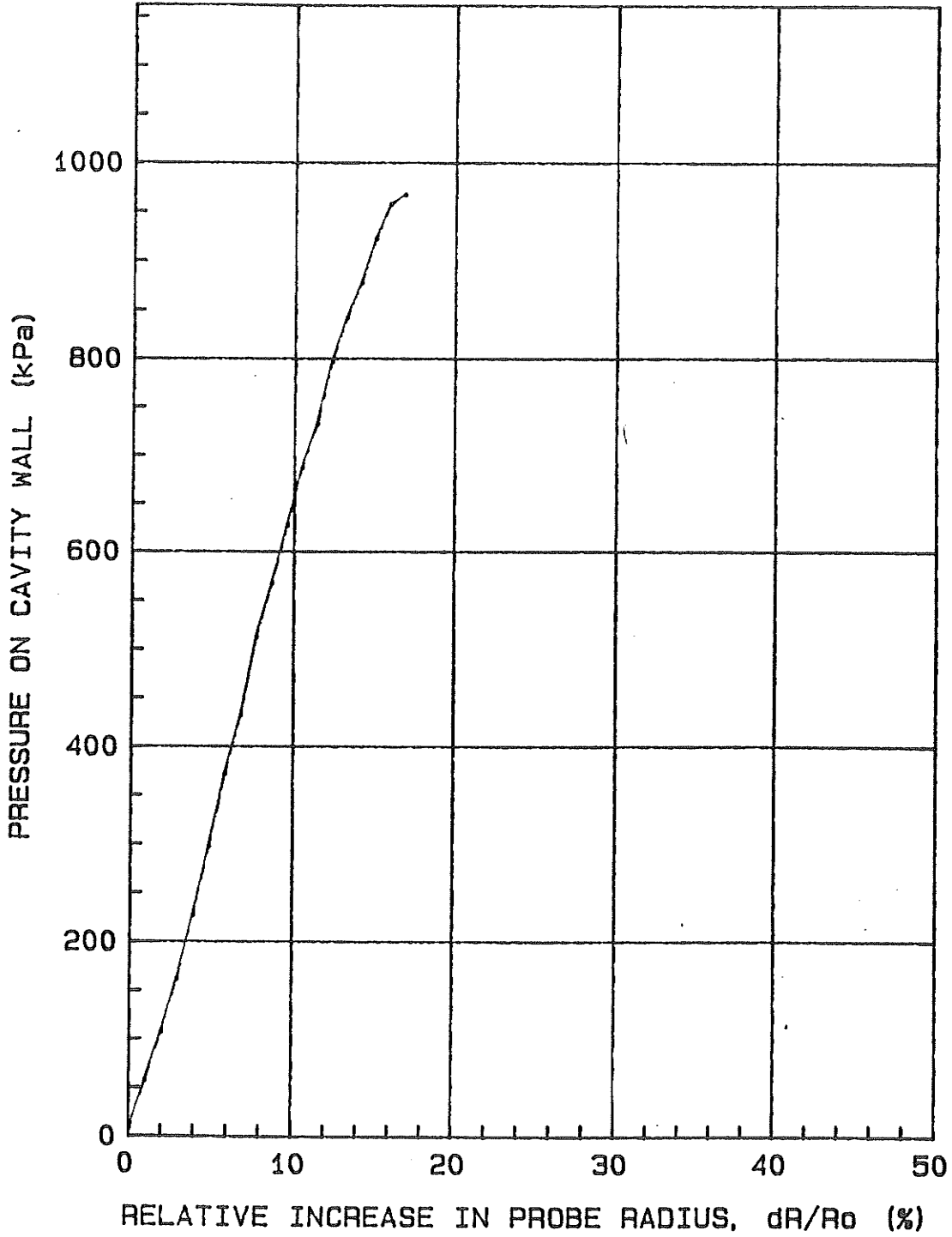
St. Andrew's R/W13-31: Nov/88: 5+570: 3mRt: Hole#7: 0.73m.

Po = 18.9 kPa      Eo = 3290 kPa  
P1 = 147.5 kPa     Er = 4475 kPa  
P1\* = 128.6 kPa    Eo/P1\* = 25.5



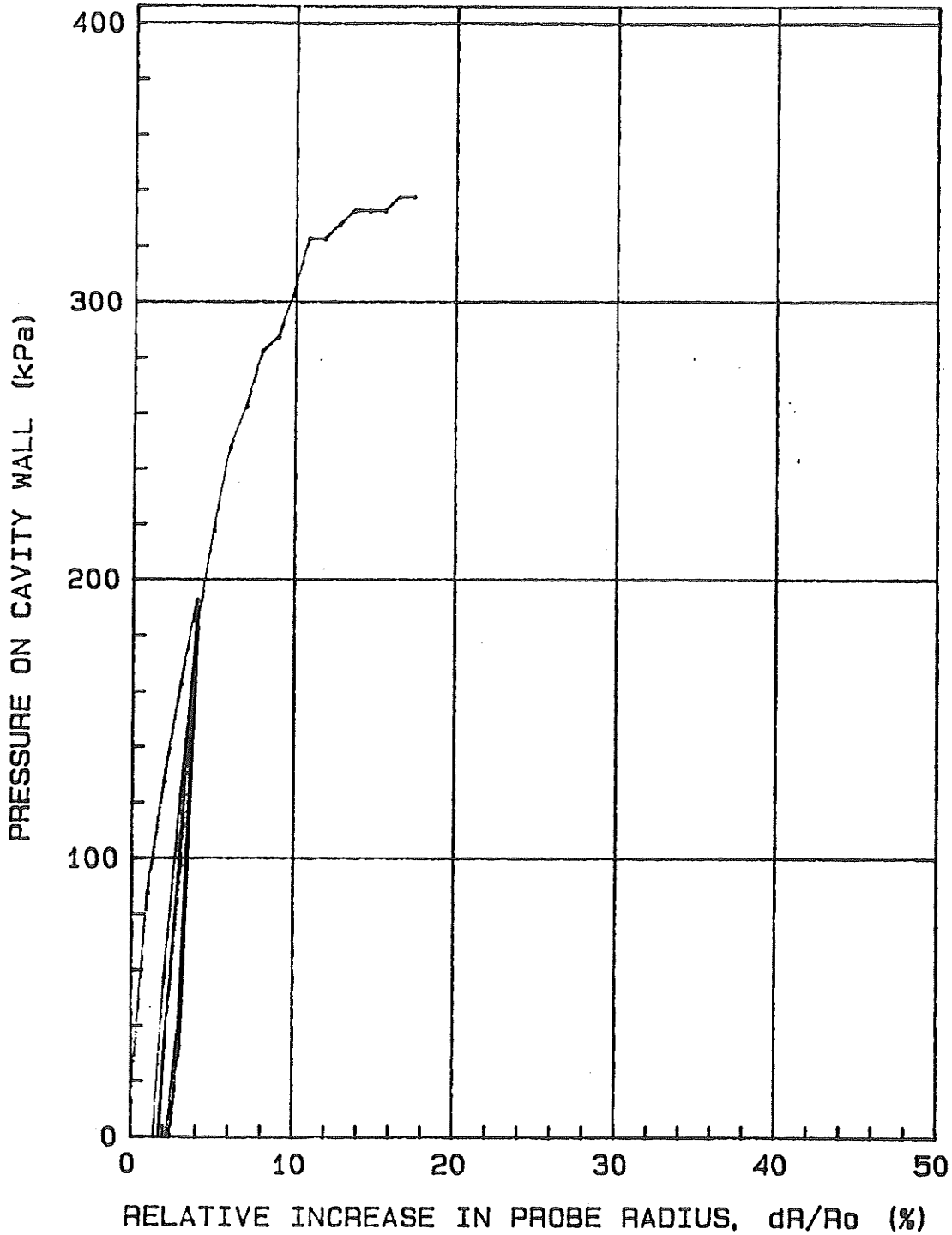
St. Andrew's R/W13-31: Nov/88: 5+570: 3mRt: Hole#7: 1.75m.

$P_0 = 2.9 \text{ kPa}$        $E_0 = 9945 \text{ kPa}$   
 $P_1 = 975 \text{ kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = 972.1 \text{ kPa}$      $E_0/P_{1*} = 10.2$



St. Andrew's R/W13-31: Nov/88: 5+660: 3mLt: Hole#8: 0.28m.

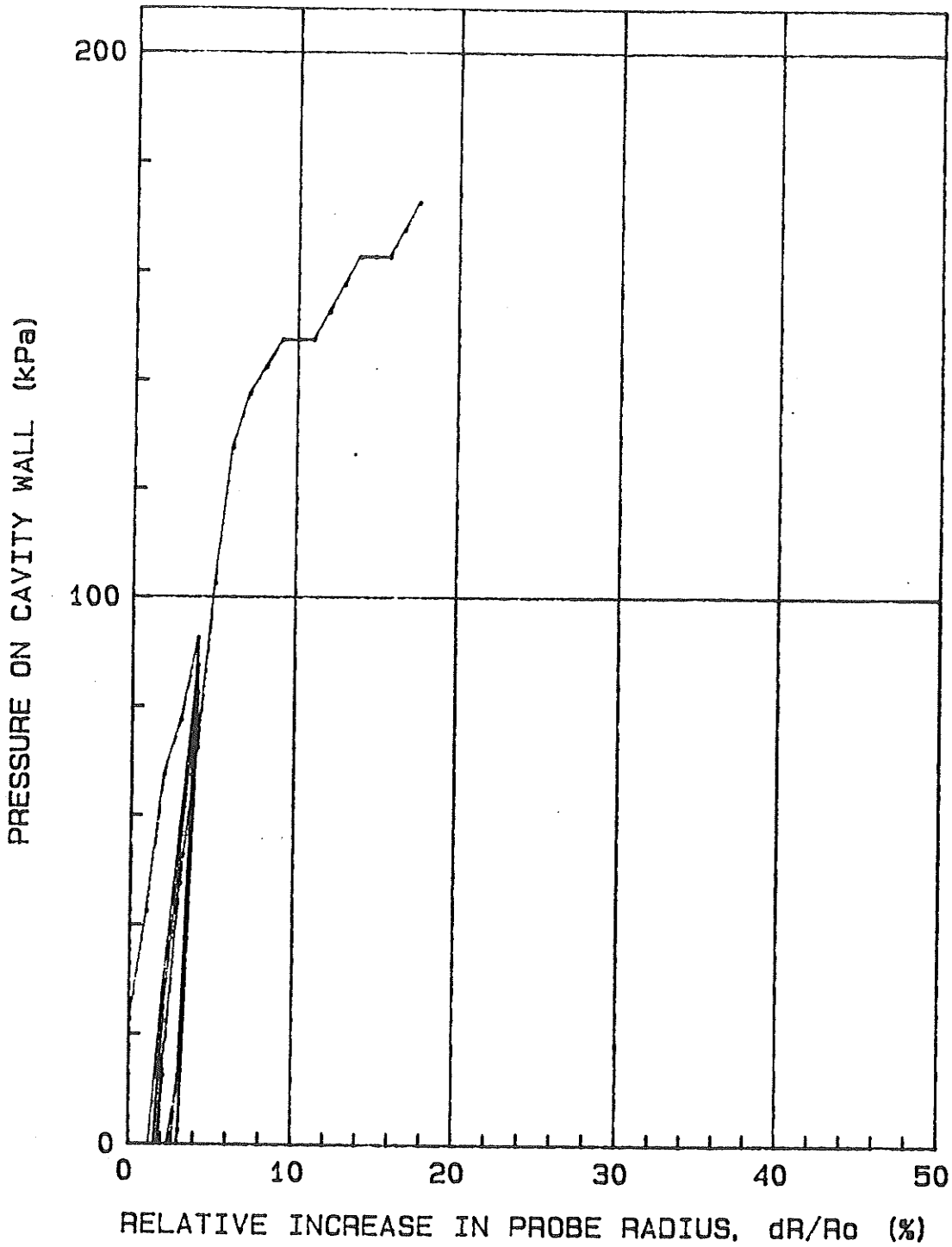
Po = 8.600001 kPa Eo = 10253 kPa  
P1 = 325 kPa Er = 10751 kPa  
P1\* = 316.4 kPa Eo/P1\* = 32.4



St. Andrew's R/W13-31: Nov/88: 5+660: 3mLt: Hole#8: 0.80m.

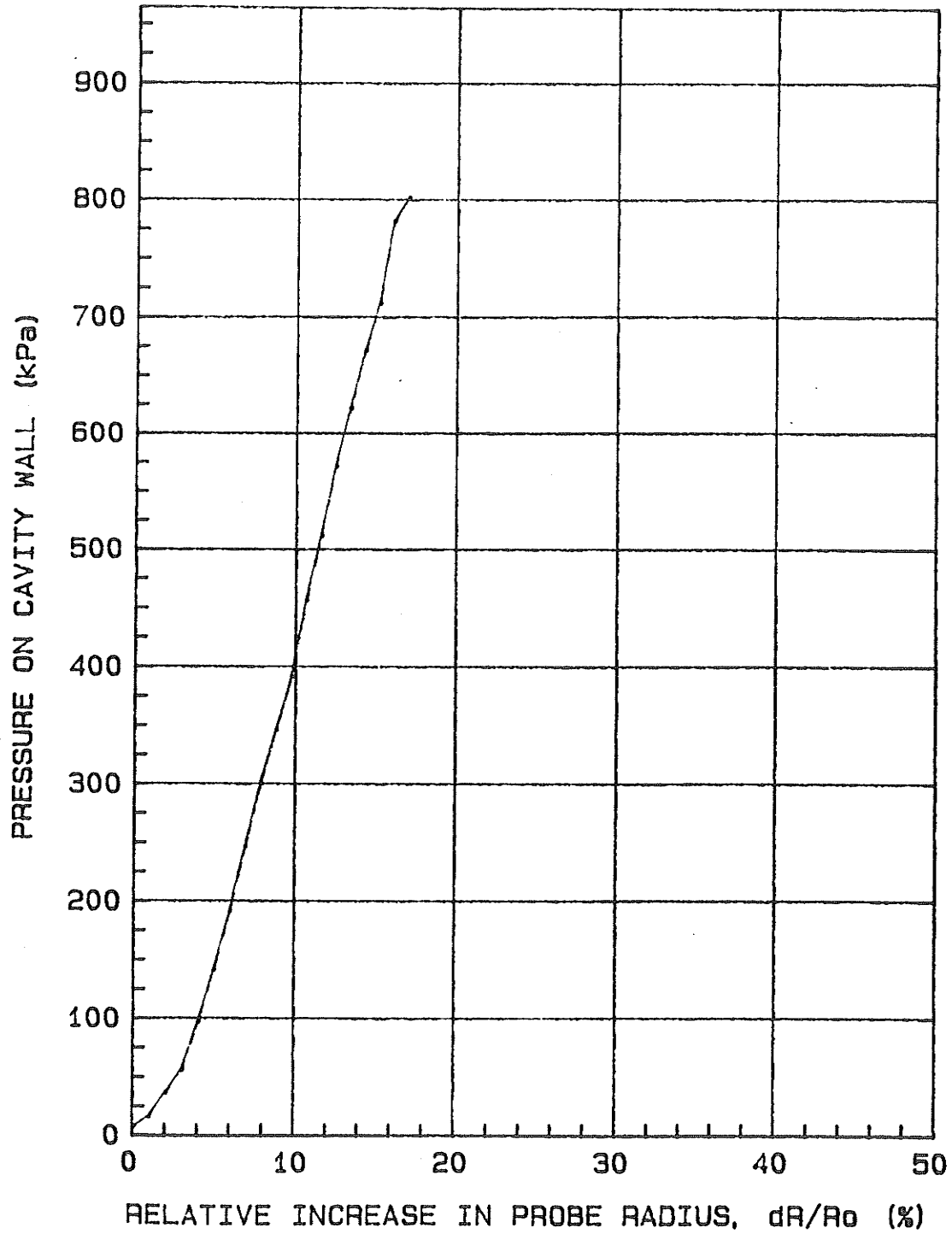


Po = 19.4 kPa      Eo = 2954 kPa  
P1 = 147.5 kPa     Er = 4122 kPa  
P1\* = 128.1 kPa    Eo/P1\* = 23



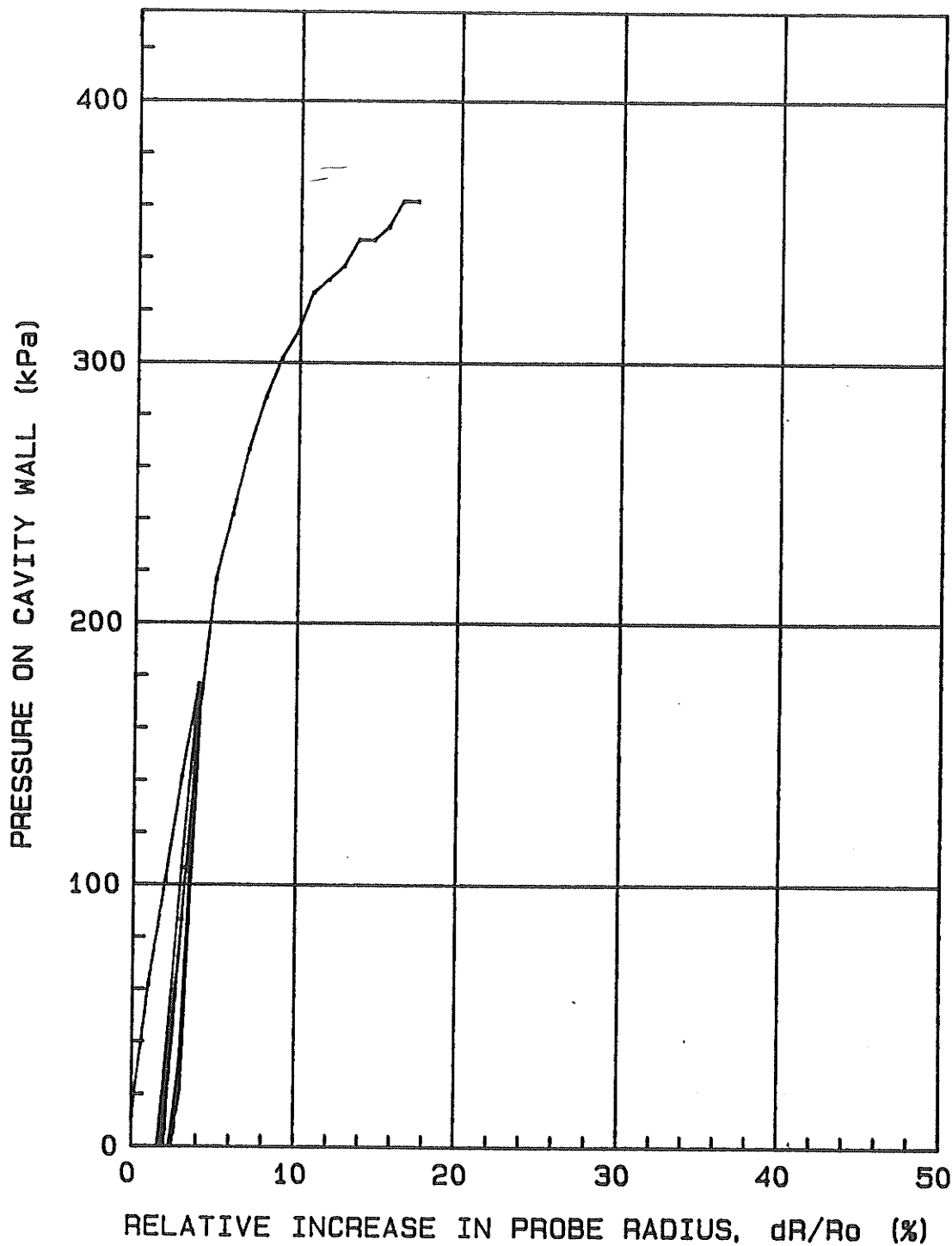
St. Andrew's R/W13-31: Nov/88: 5+660: 3mLt: Hole#8: 1.80m.

$P_0 = 2.9 \text{ kPa}$        $E_0 = 8376 \text{ kPa}$   
 $P_1 = 950 \text{ kPa}$        $E_r = \text{                      kPa}$   
 $P_{1*} = 947.1 \text{ kPa}$      $E_0/P_{1*} = 8.8$



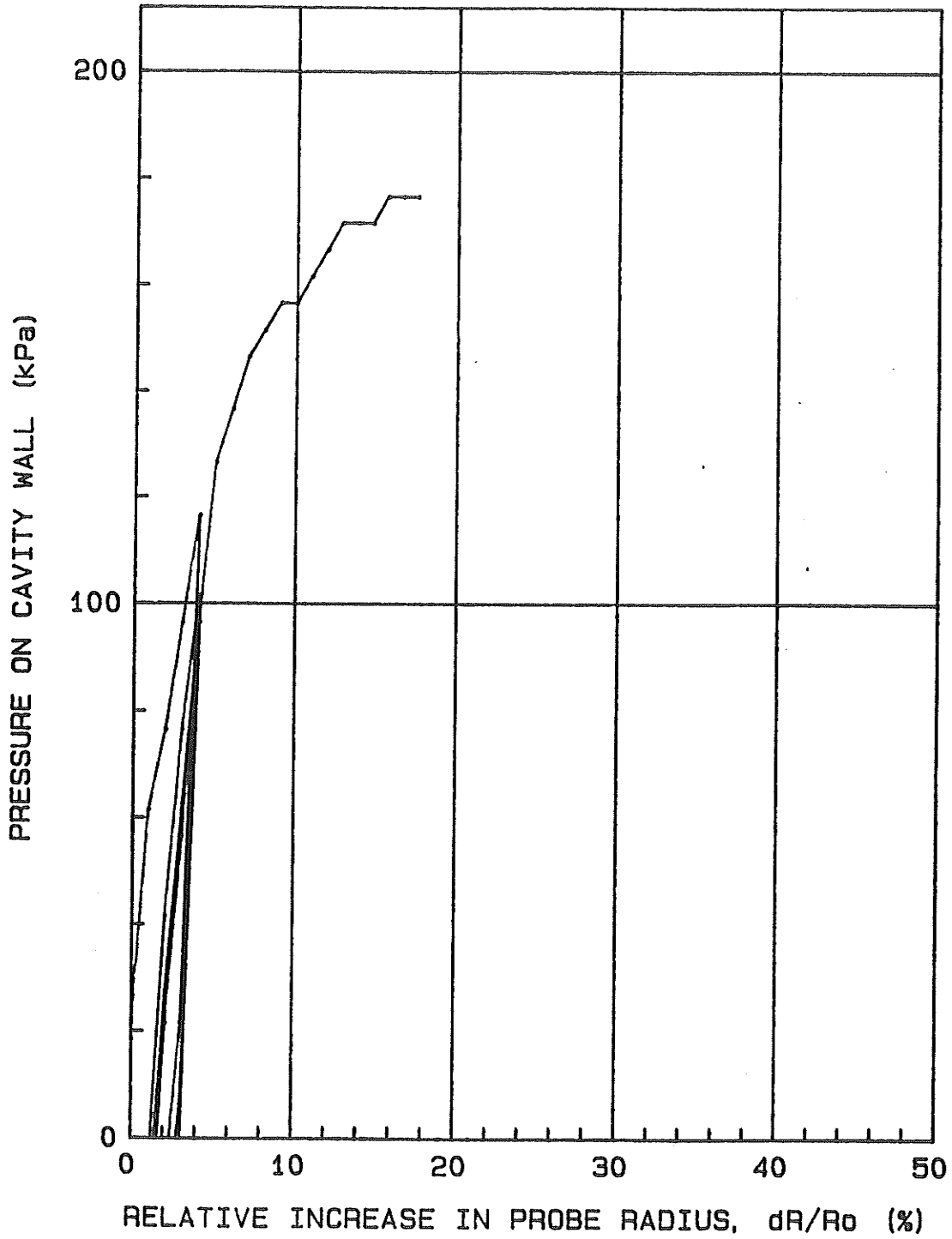
St. Andrew's R/W13-31: Nov/88: 5+750: 3mRt: Hole#9: 0.23m.

Po = 7.6 kPa      Eo = 6671 kPa  
P1 = 345 kPa      Er = 11141 kPa  
P1\* = 337.4 kPa    Eo/P1\* = 19.7



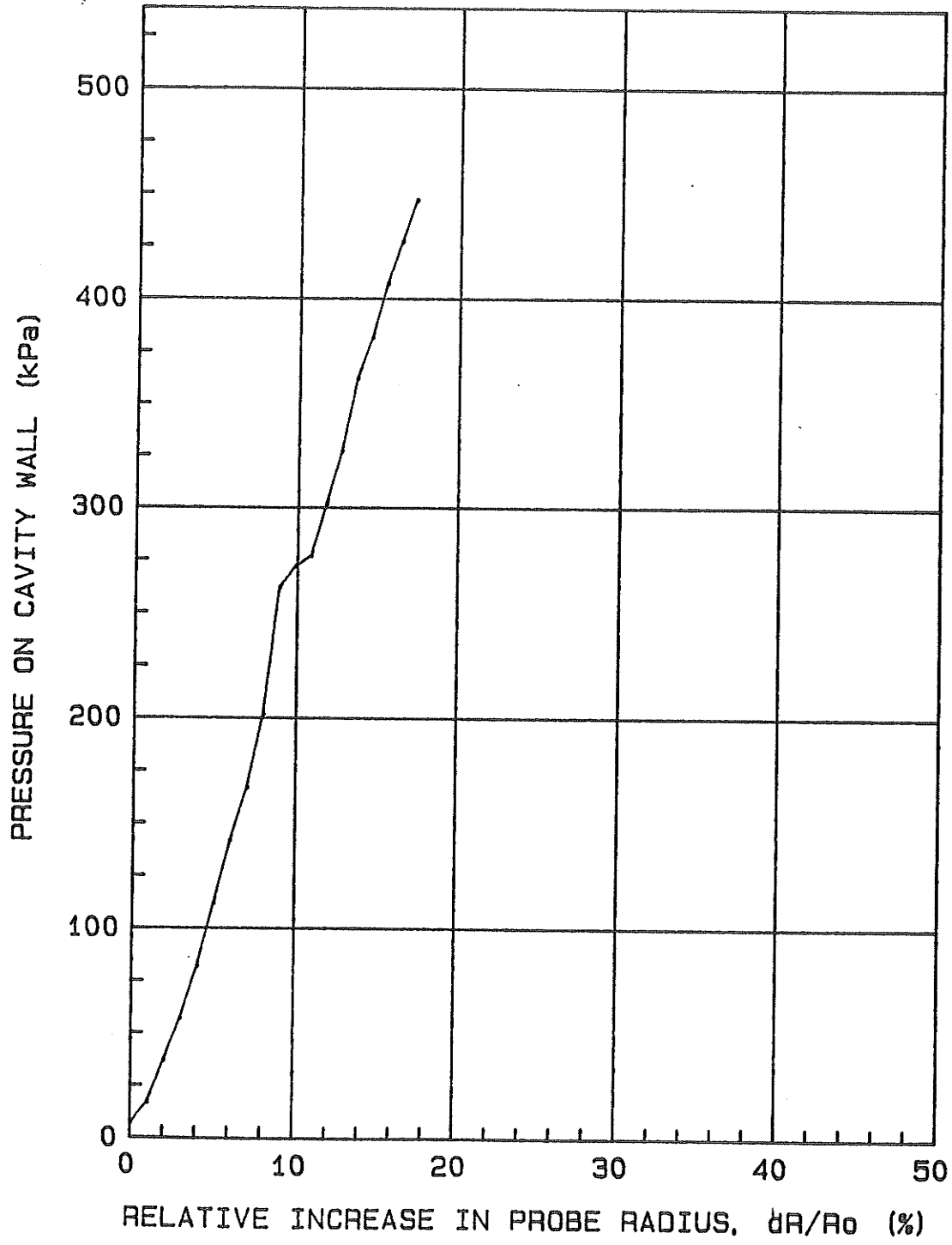
St. Andrew's R/W13-31: Nov/88: 5+750: 3mRt: Hole#9: 0.70m.

Po = 18.4 kPa      Eo = 5286 kPa  
P1 = 157.5 kPa    Er = 5188 kPa  
P1\* = 139.1 kPa   Eo/P1\* = 38



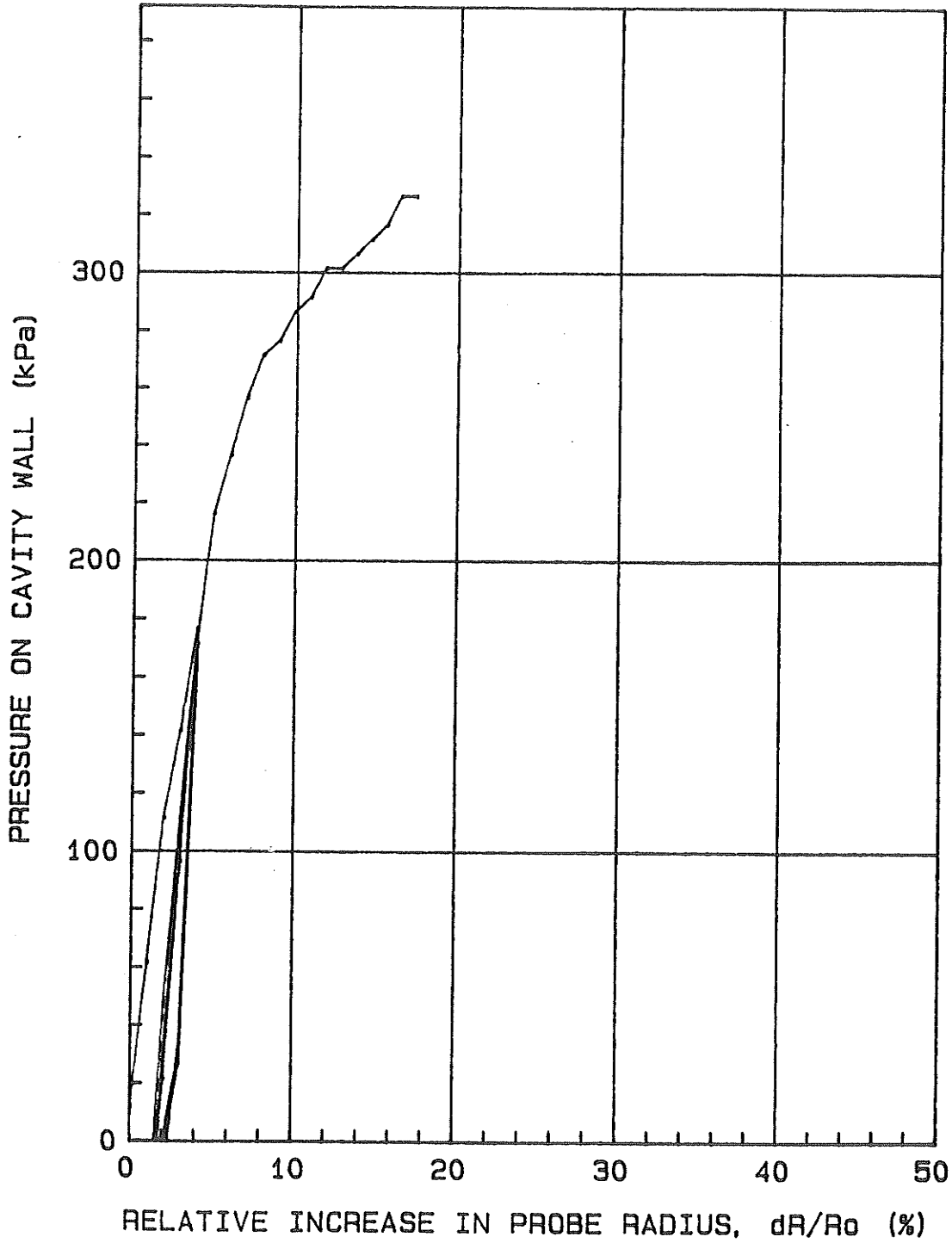
St. Andrew's R/W13-31: Nov/88: 5+750: 3mRt: Hole#9: 1.70m.

$P_0 = 2.4 \text{ kPa}$        $E_0 = 4330 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad \quad$



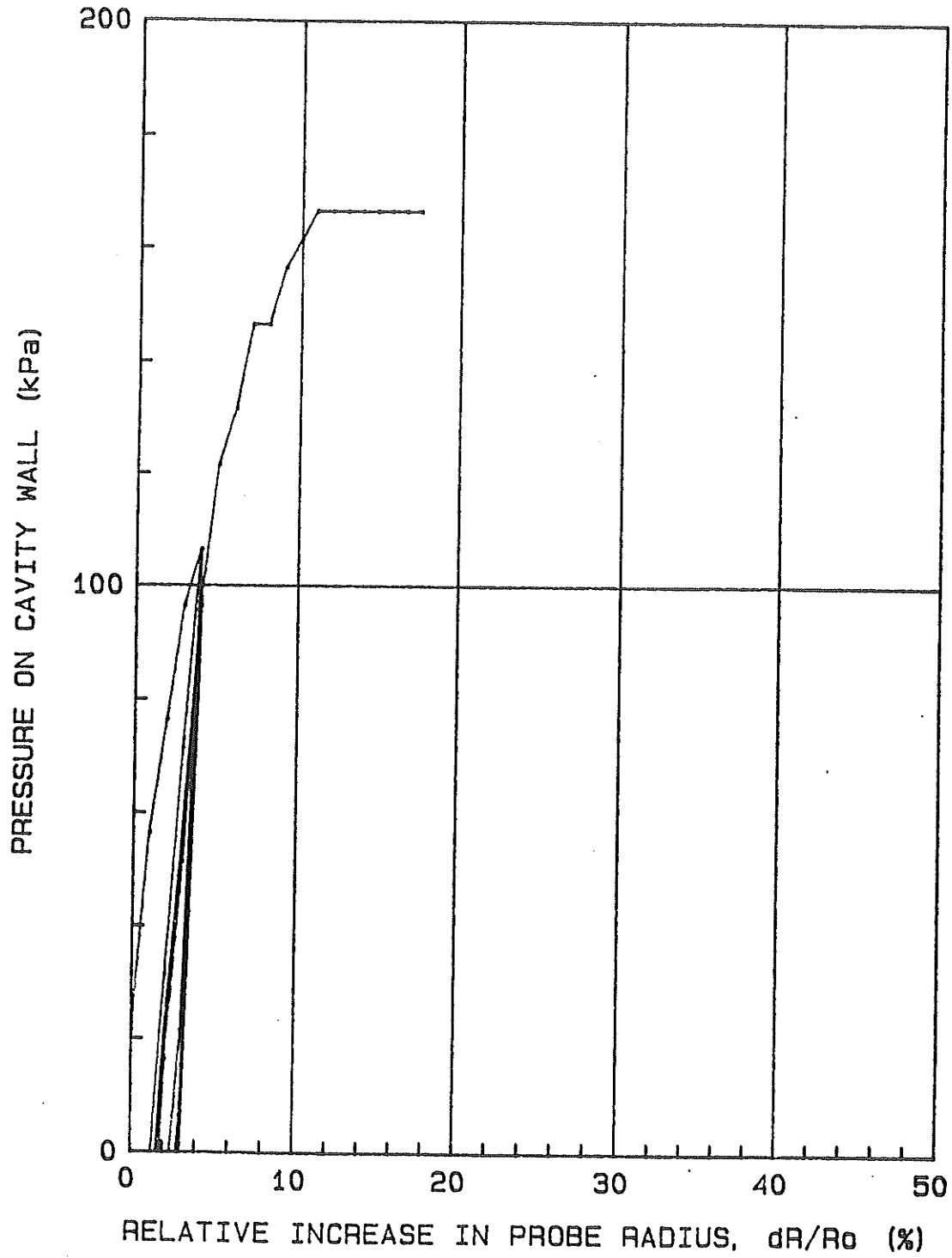
St. Andrew's R/W13-31: Nov/88: 5+840: 3mLt: Hole#10: 0.23m.

Po = 7.6 kPa      Eo = 6737 kPa  
P1 = 300 kPa      Er = 10753 kPa  
P1\* = 292.4 kPa    Eo/P1\* = 23



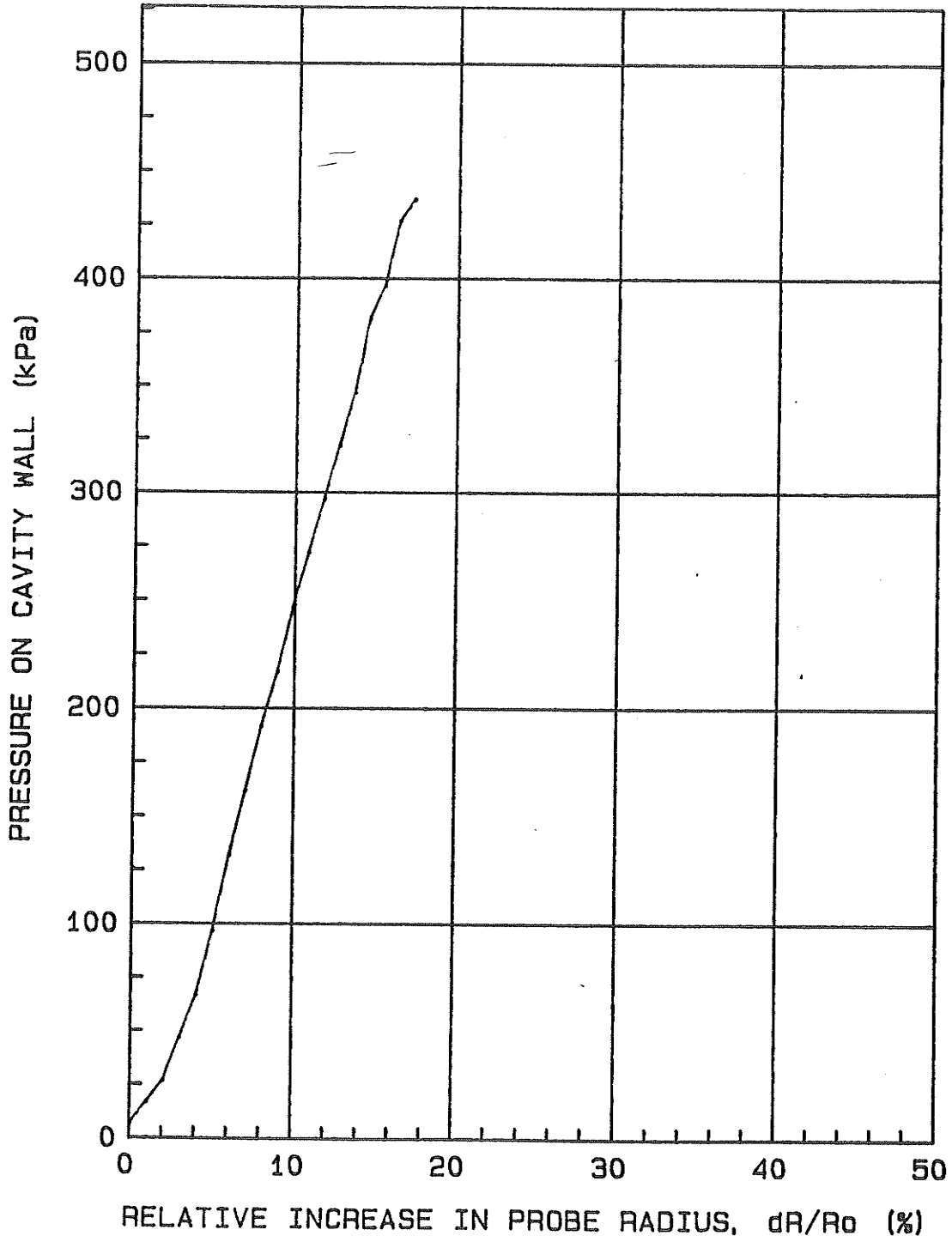
St. Andrew's R/W13-31: Nov/88: 5+840: 3mLt: Hole#10: 0.70m.

Po = 18.4 kPa      Eo = 4603 kPa  
P1 = 147.5 kPa     Er = 5547 kPa  
P1\* = 129.1 kPa    Eo/P1\* = 35.6



St. Andrew's R/W13-31: Nov/88: 5+840: 3mLt: Hole#10: 1.70m.

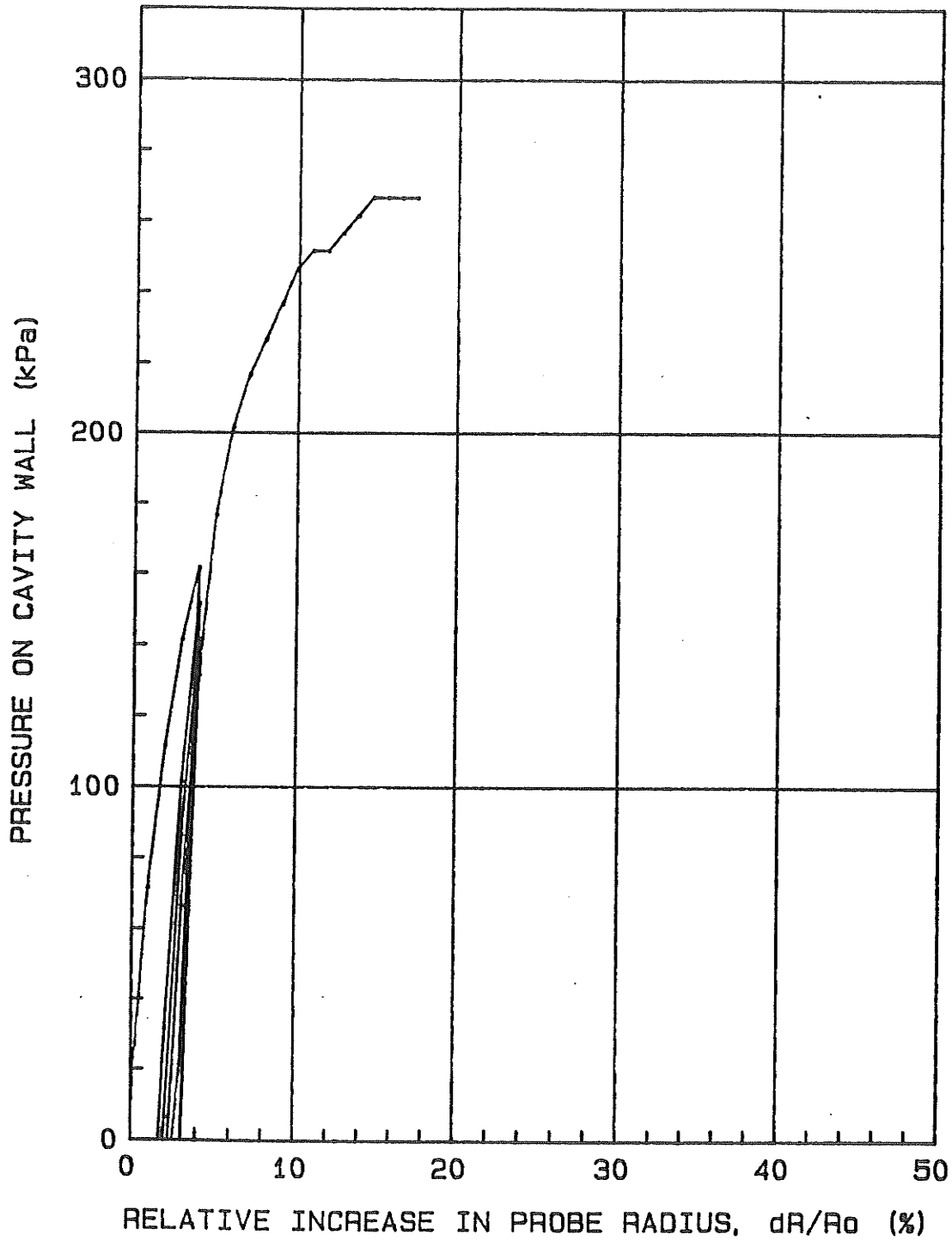
$P_0 = 2.4 \text{ kPa}$        $E_0 = 4342 \text{ kPa}$   
 $P_1 = 550 \text{ kPa}$        $E_r = \text{                      kPa}$   
 $P_1^* = 547.6 \text{ kPa}$      $E_0/P_1^* = 7.9$



St. Andrew's R/W13-31: Nov/88: 5+900: 3mRt: Hole#11: 0.23m.



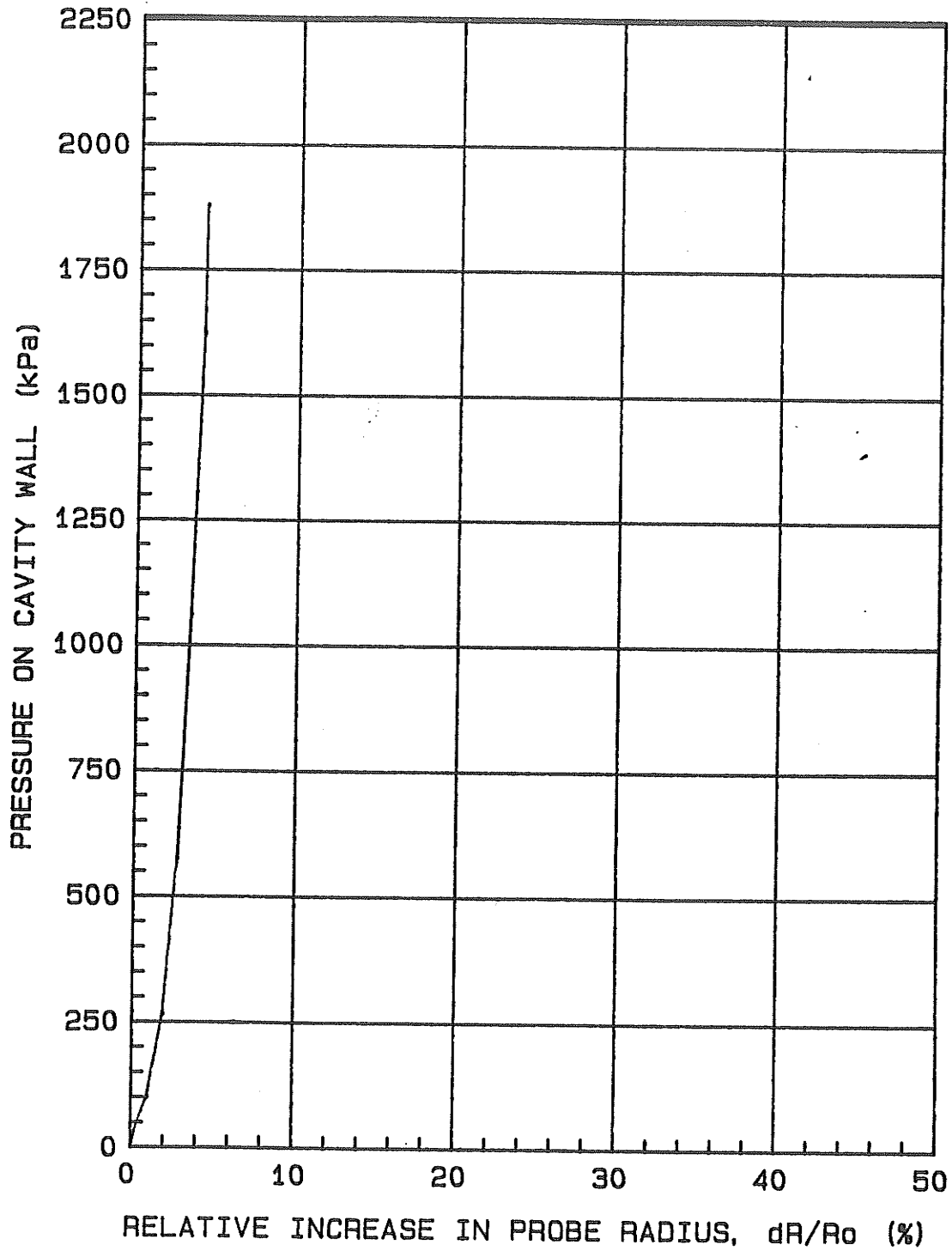
$P_0 = 7.6 \text{ kPa}$        $E_0 = 8082 \text{ kPa}$   
 $P_1 = 250 \text{ kPa}$        $E_r = 10376 \text{ kPa}$   
 $P_{1*} = 242.4 \text{ kPa}$      $E_0/P_{1*} = 33.3$



St. Andrew's R/W13-31: Nov/88: 5+900: 3mRt: Hole#11: 0.70m.

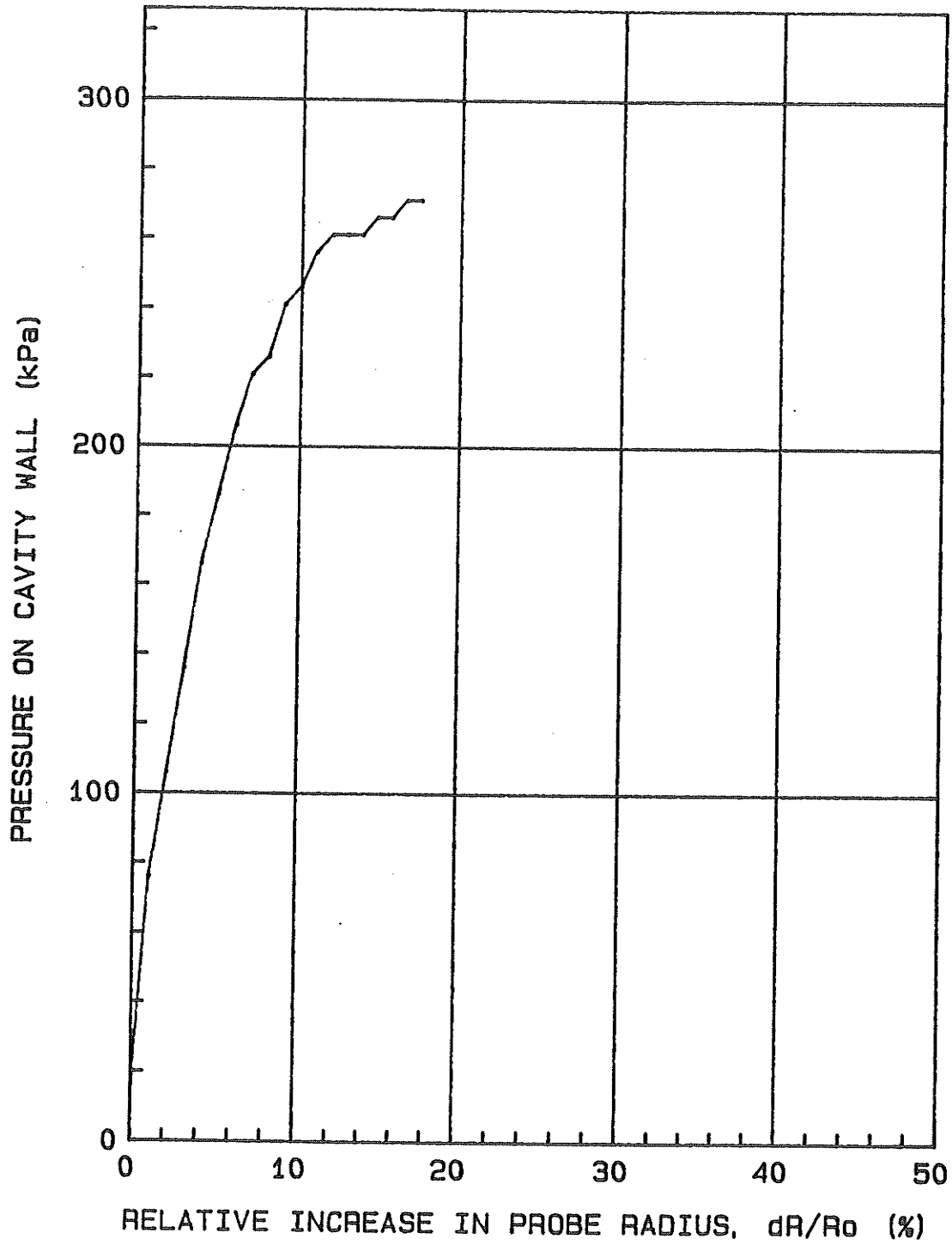
Po = 6.3 kPa  
P1 =        kPa  
P1\* =       kPa

Eo = 123469 kPa  
Er =        kPa  
Eo/P1\* =



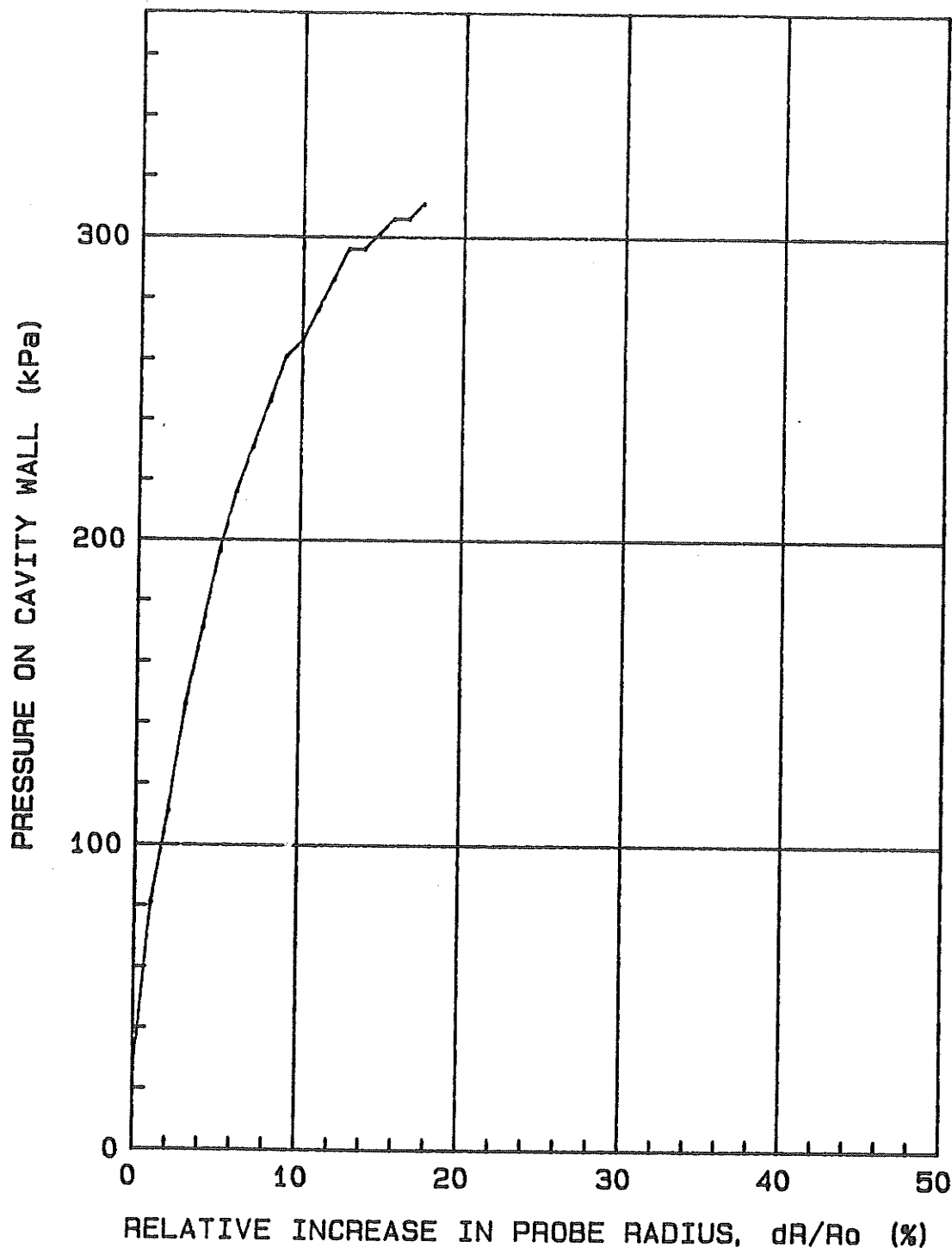
Regina R/W12-30: October/88: 5+055: 3mLt: Hole#1: 0.60m.

Po = 12.4 kPa      Eo = 4029 kPa  
P1 = 260 kPa      Er =            kPa  
P1\* = 247.6 kPa    Eo/P1\* = 16.2



Regina R/W12-30: October/88: 5+055: 3mLt: Hole#1: 1.15m.

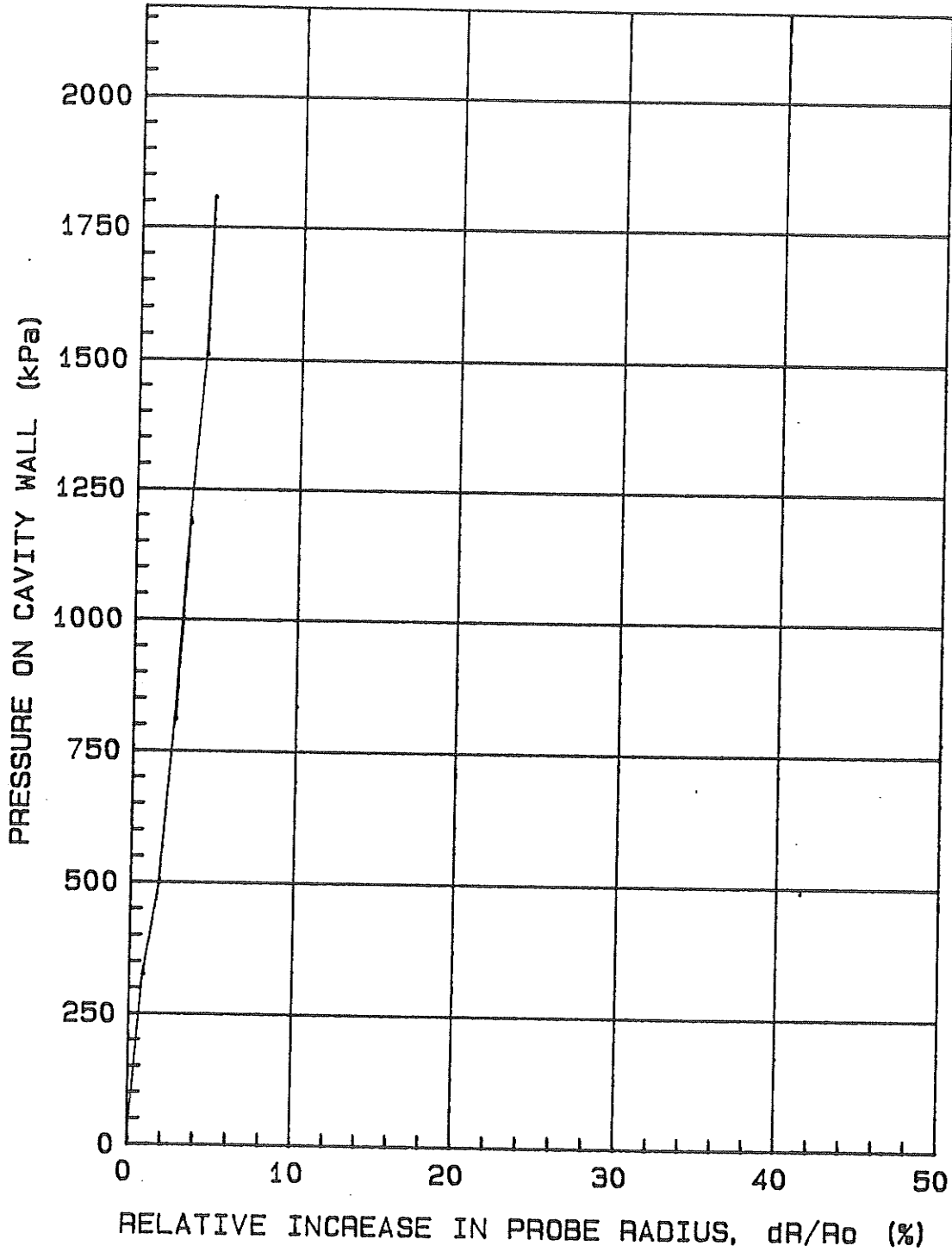
Po = 23.2 kPa      Eo = 4337 kPa  
P1 = 295 kPa      Er =            kPa  
P1\* = 271.8 kPa    Eo/P1\* = 15.9



Regina R/W12-30: October/88: 5+055: 3mLt: Hole#1: 2.15m.

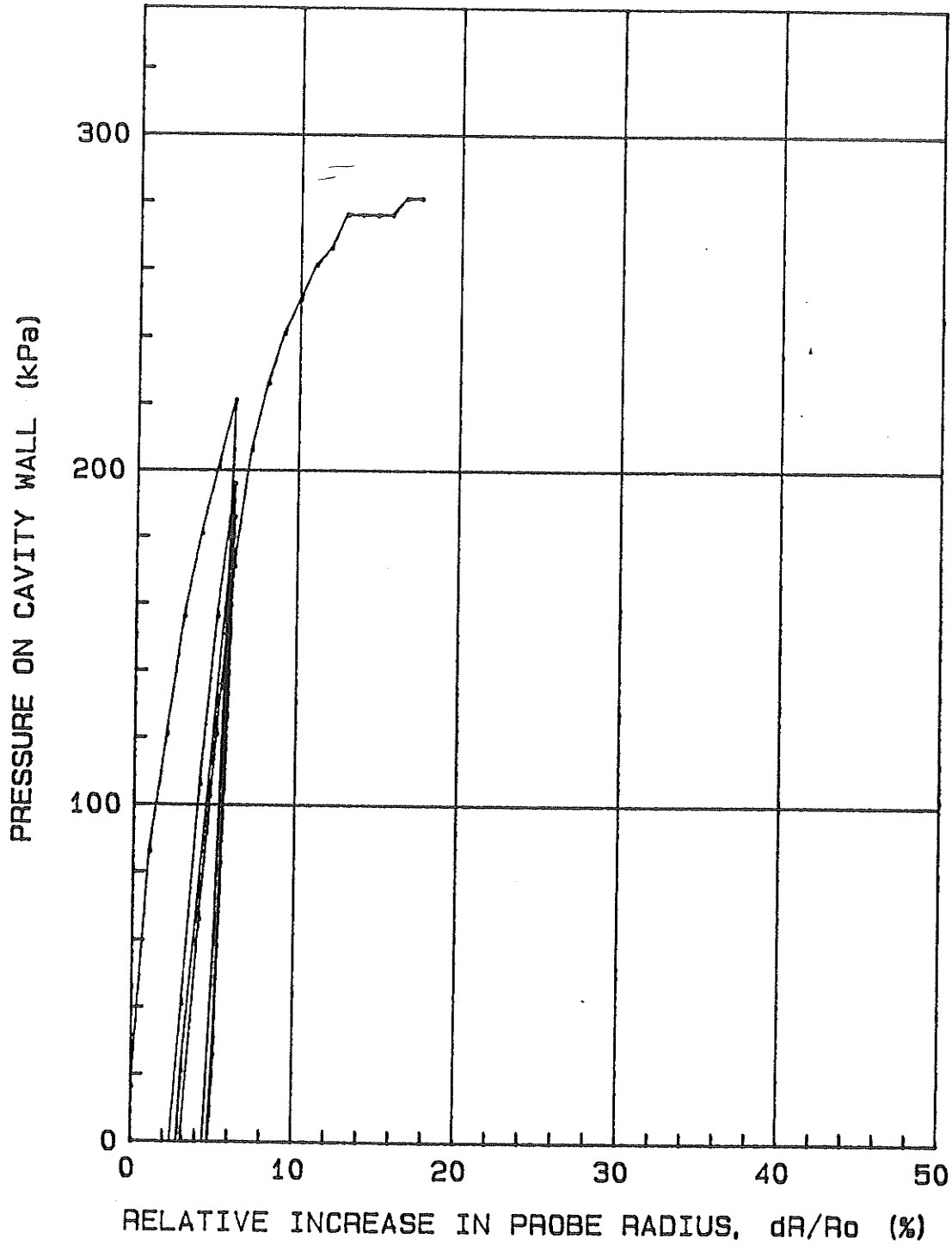
Po = 6.3 kPa  
P1 =        kPa  
P1\* =        kPa

Eo = 57859 kPa  
Er =        kPa  
Eo/P1\* =



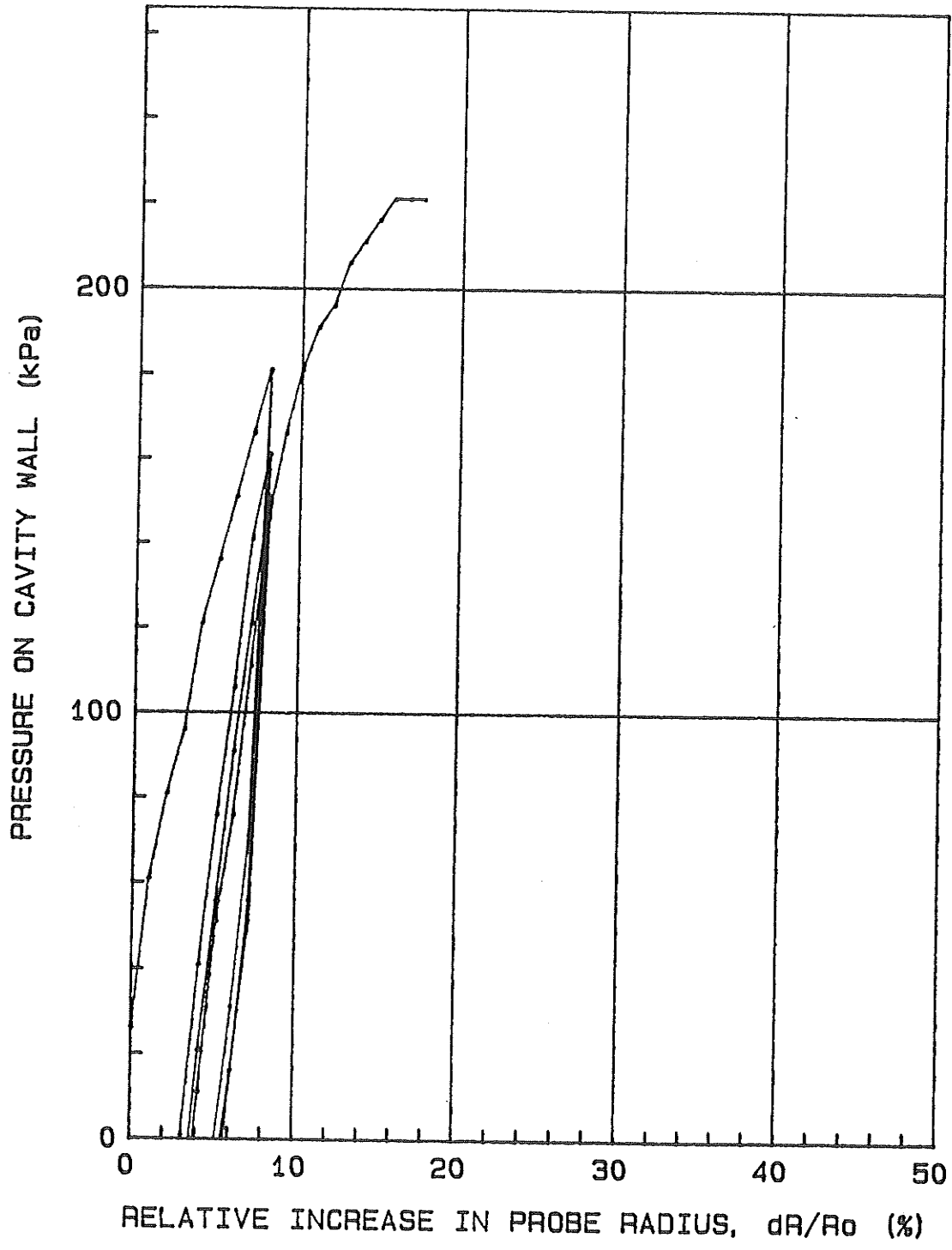
Regina R/W12-30: October/88: 5+100: 3mRt: Hole#2: 0.60m.

Po = 12.4 kPa      Eo = 9324 kPa  
P1 = 275 kPa      Er = 8044 kPa  
P1\* = 262.6 kPa    Eo/P1\* = 35.5



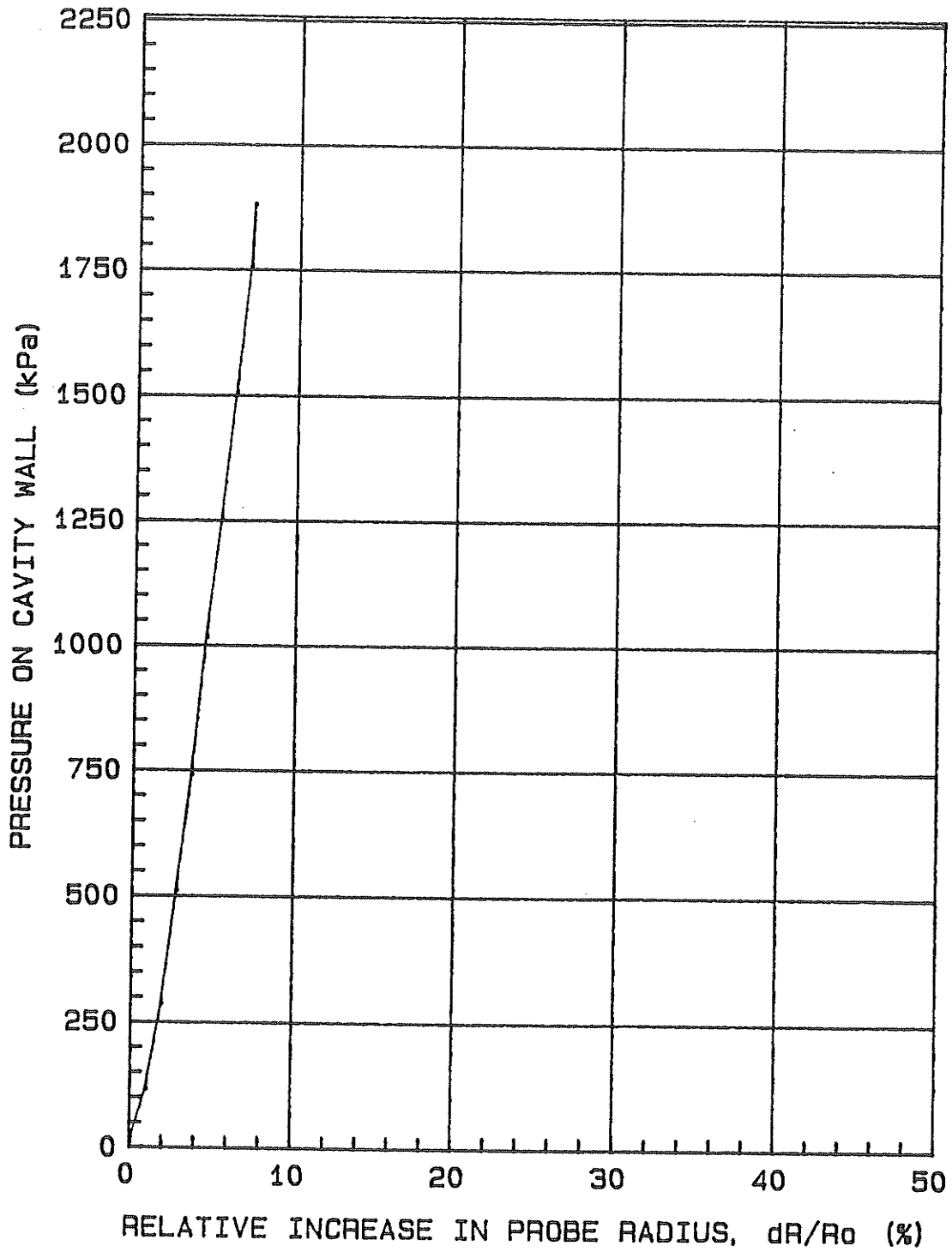
Regina R/W12-30: October/88: 5+100: 3mRt: Hole#2: 1.15m.

$P_0 = 23.2 \text{ kPa}$        $E_0 = 4548 \text{ kPa}$   
 $P_1 = 220 \text{ kPa}$        $E_r = 4853 \text{ kPa}$   
 $P_1^* = 196.8 \text{ kPa}$      $E_0/P_1^* = 23.1$



Regina R/W12-30: October/88: 5+100: 3mRt: Hole#2: 2.15m.

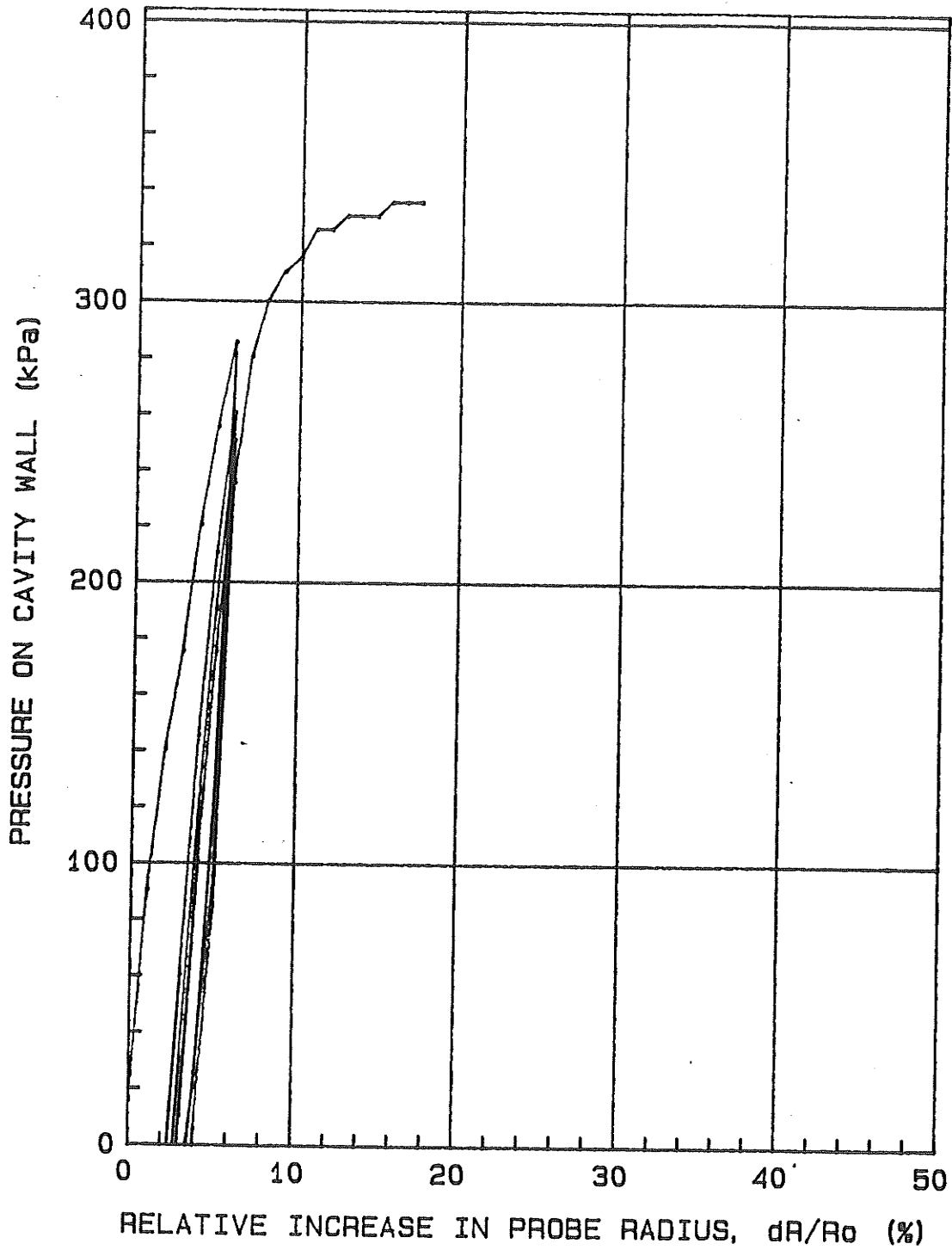
$P_0 = 7.4 \text{ kPa}$        $E_0 = 42465 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



Regina R/W12-30: October/88: 5+330: 3mRt: Hole#3: 0.70m.

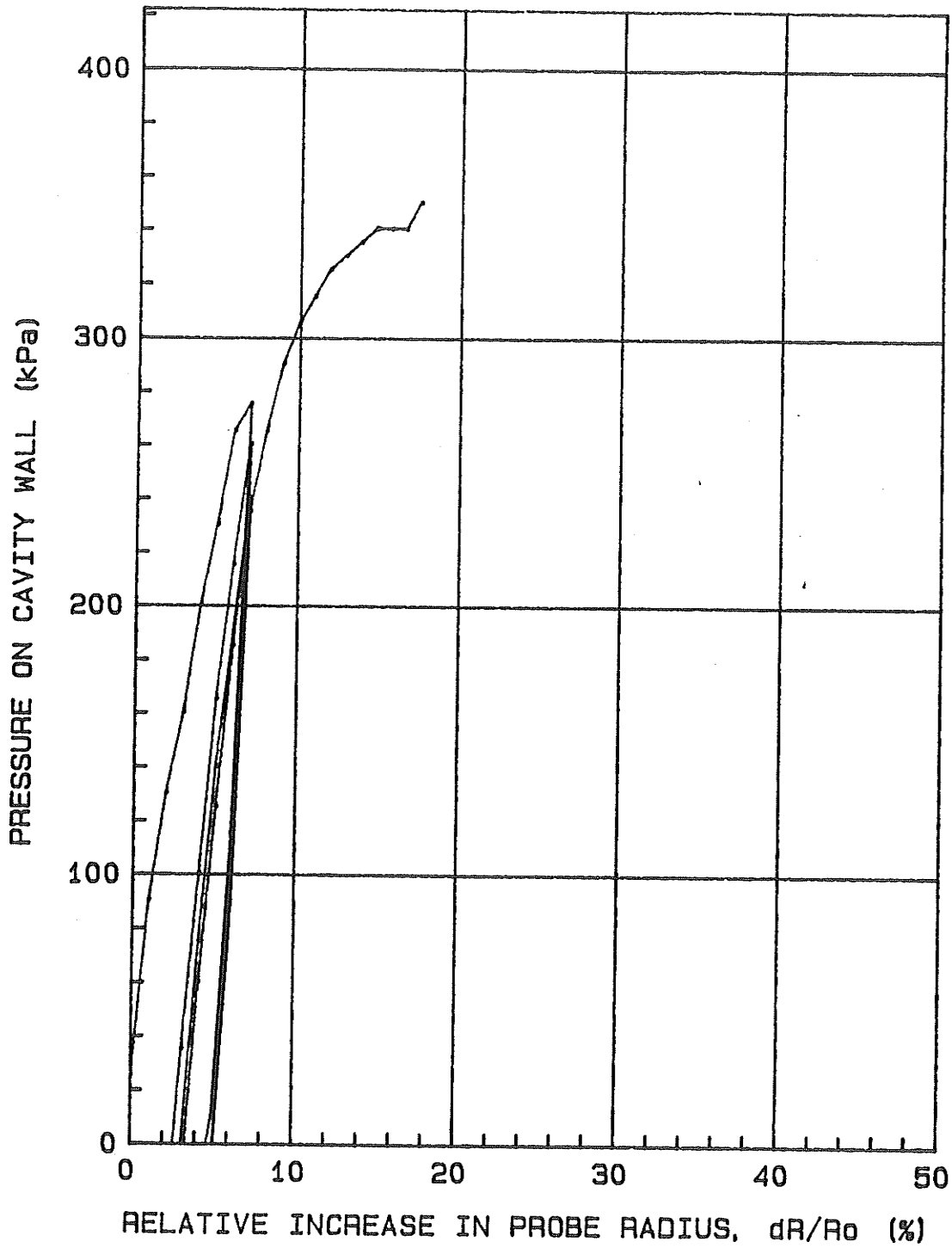


Po = 11.9 kPa      Eo = 10026 kPa  
P1 = 325 kPa      Er = 10782 kPa  
P1\* = 313.1 kPa    Eo/P1\* = 32



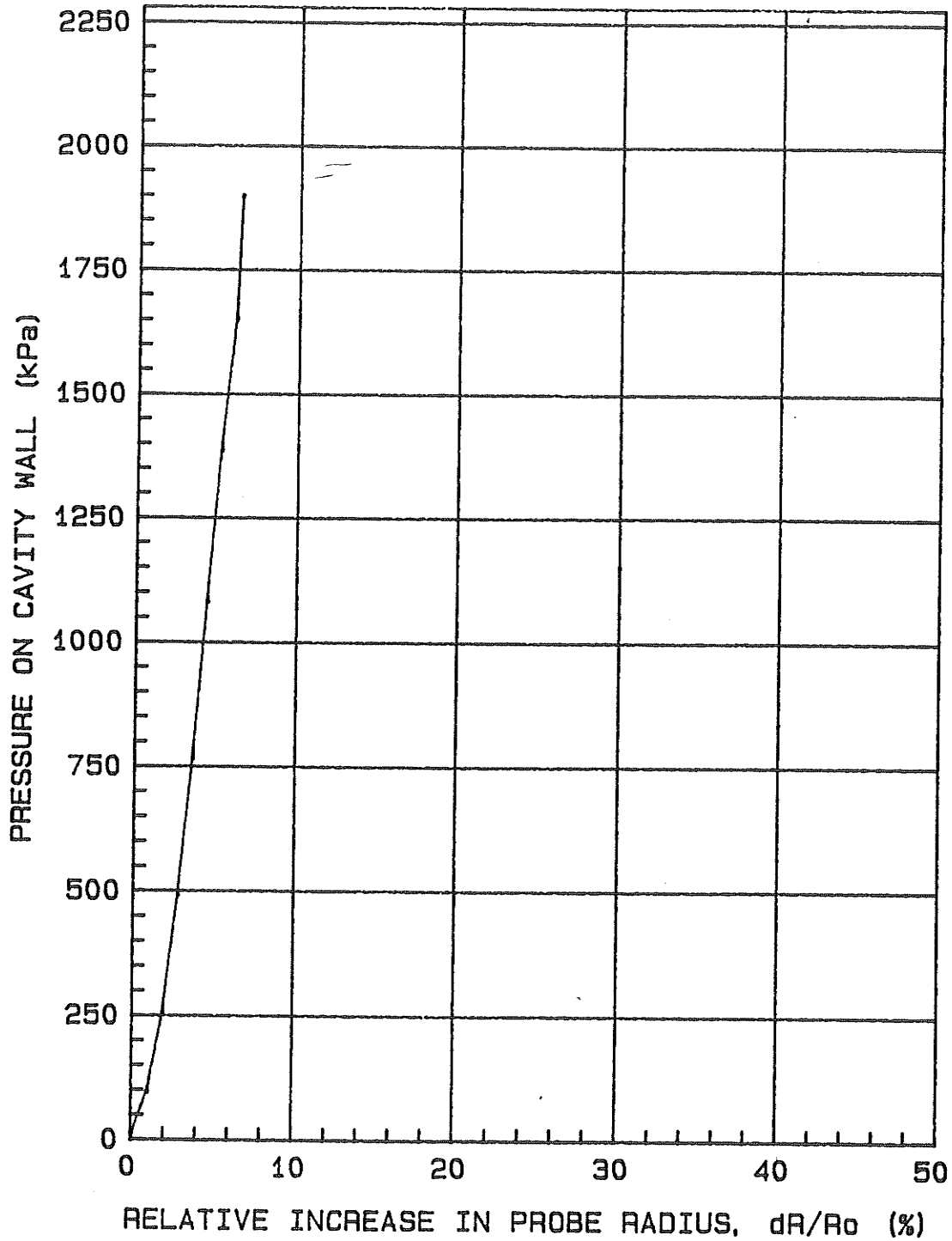
Regina R/W12-30: October/88: 5+330: 3mRt: Hole#3: 1.10m.

Po = 22.7 kPa      Eo = 8627 kPa  
P1 = 340 kPa      Er = 8995 kPa  
P1\* = 317.3 kPa    Eo/P1\* = 27.1



Regina R/W12-30: October/88: 5+330: 3mRt: Hole#3: 2.10m.

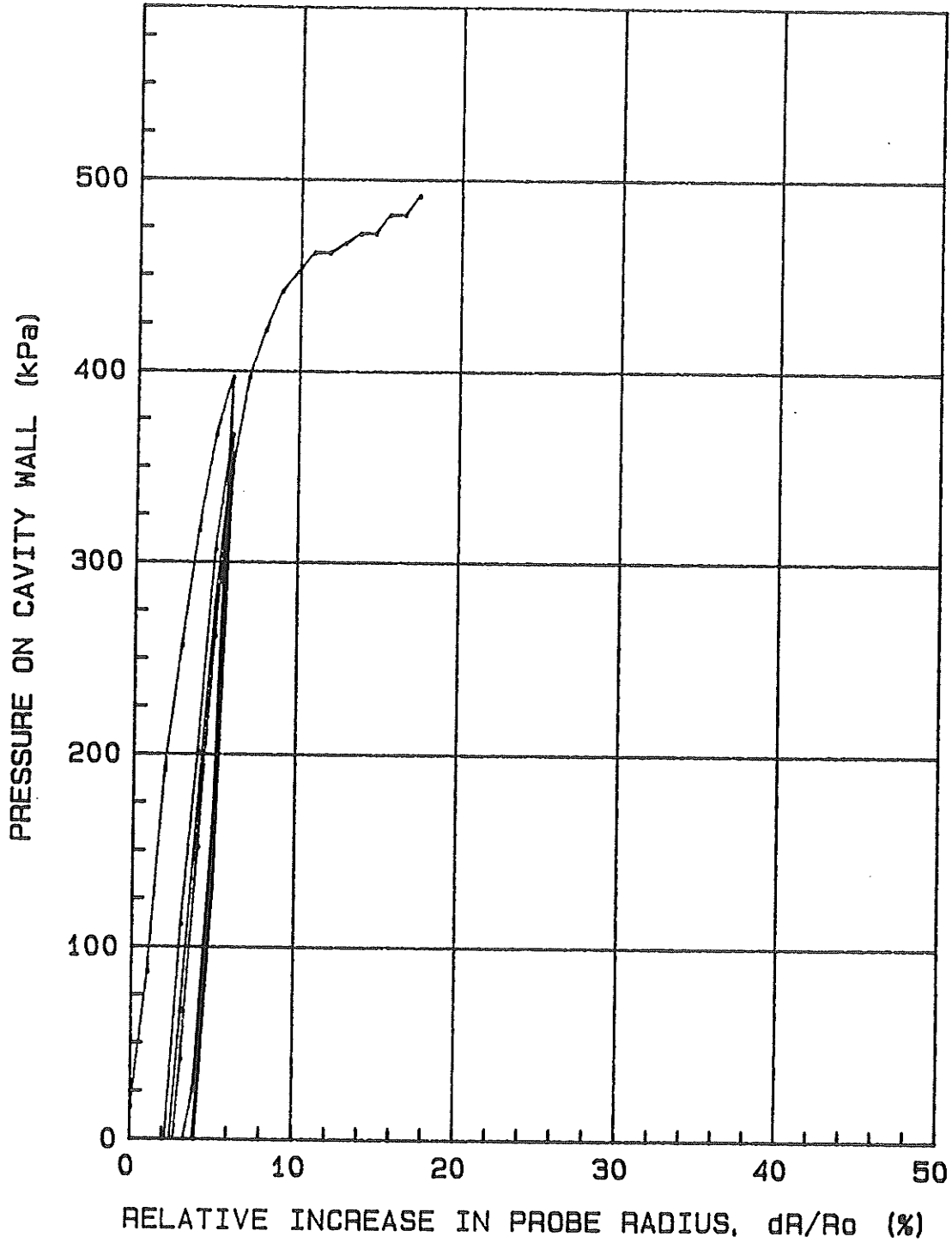
Po = 7.1 kPa      Eo = 50646 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



Regina R/W12-30: October/88: 5+498: 3mRt: Hole#4: 0.68m.

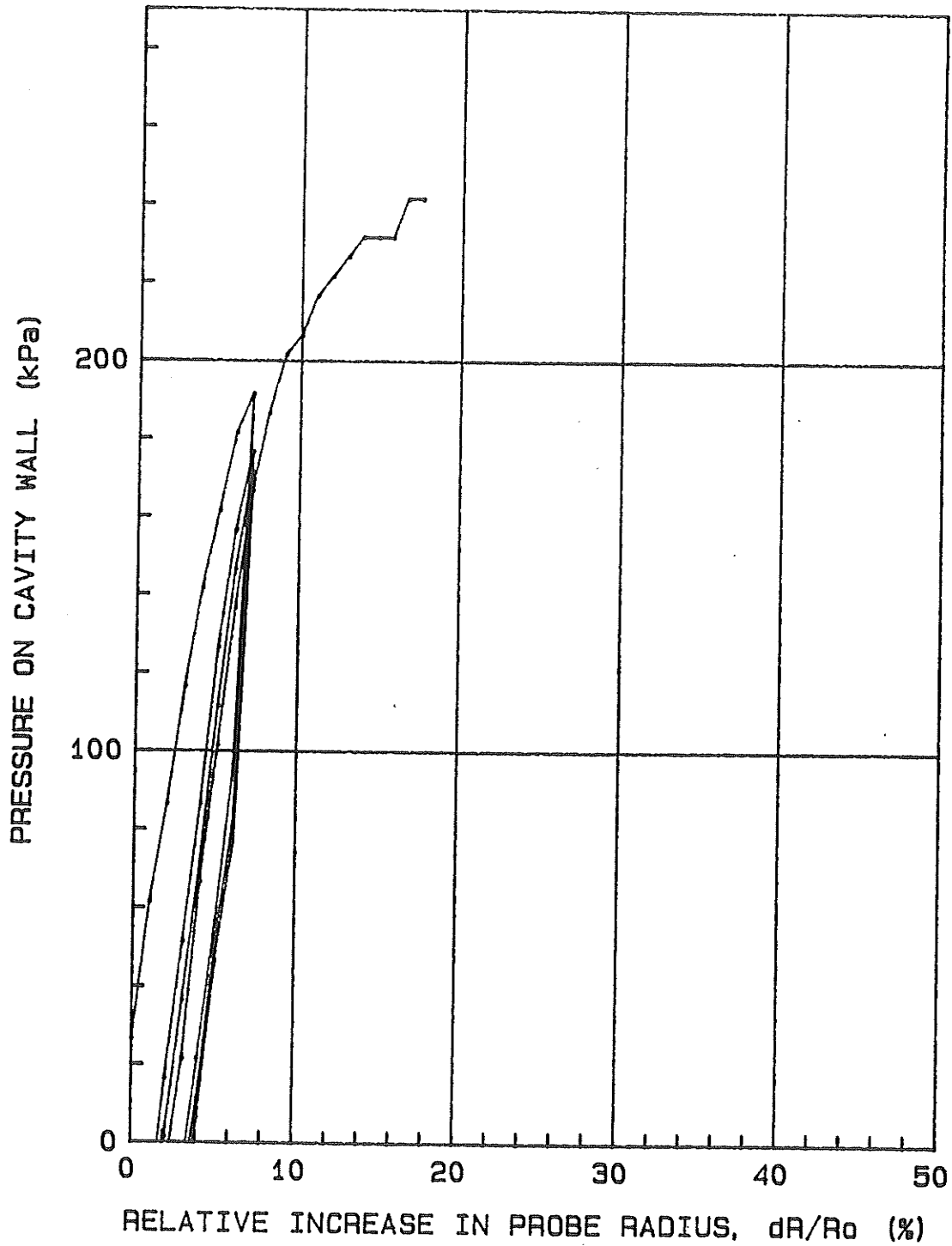
Po = 13 kPa  
P1 = 460 kPa  
P1\* = 447 kPa

Eo = 11920 kPa  
Er = 14888 kPa  
Eo/P1\* = 26.6



Regina R/W12-30: October/88: 5+498: 3mRt: Hole#4: 1.20m.

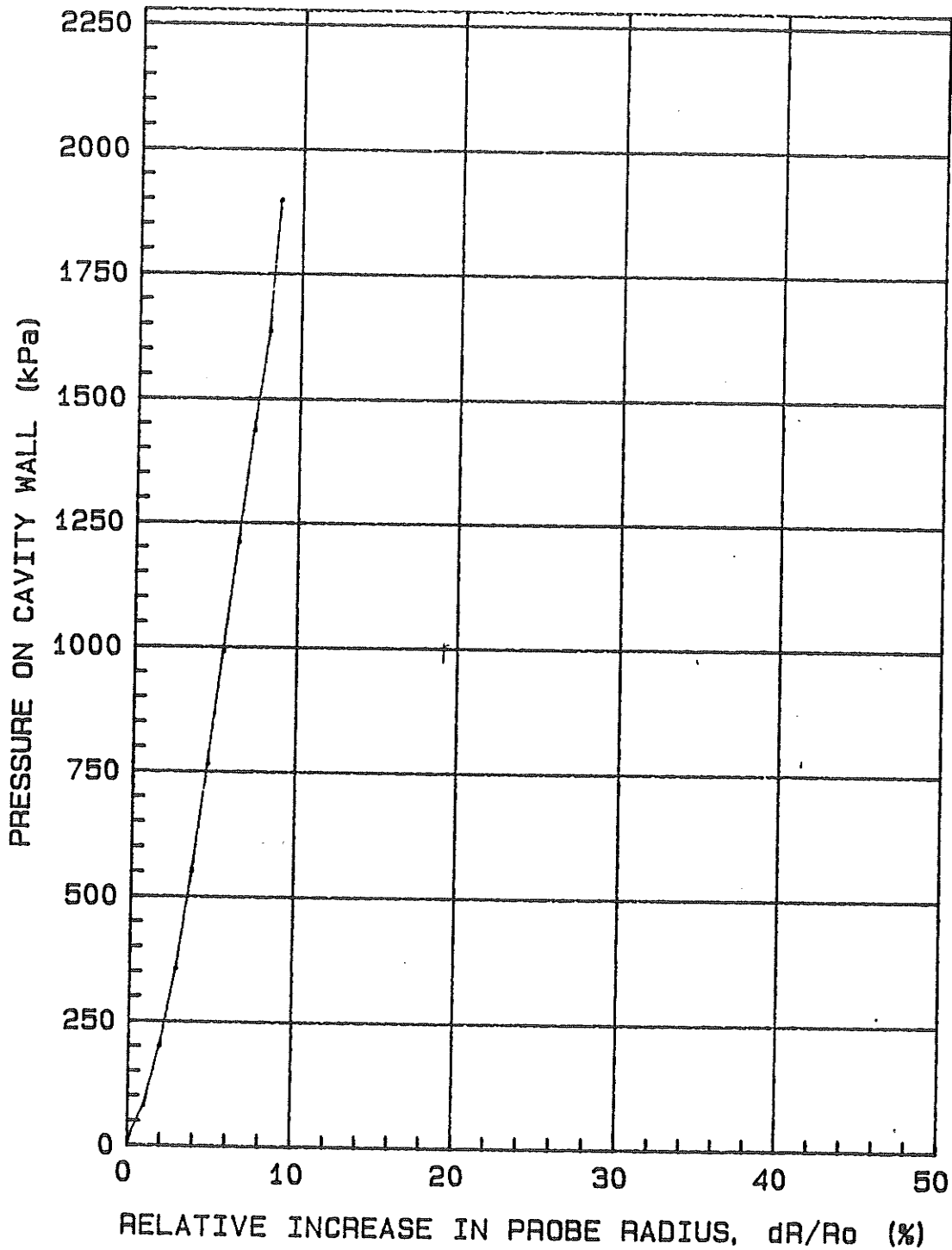
$P_0 = 23.8 \text{ kPa}$        $E_0 = 4548 \text{ kPa}$   
 $P_1 = 230 \text{ kPa}$        $E_r = 5122 \text{ kPa}$   
 $P_1^* = 206.2 \text{ kPa}$      $E_0/P_1^* = 22$



Regina R/W12-30: October/88: 5+498: 3mRt: Hole#4: 2.20m.

Po = 7.5 kPa  
P1 =            kPa  
P1\* =           kPa

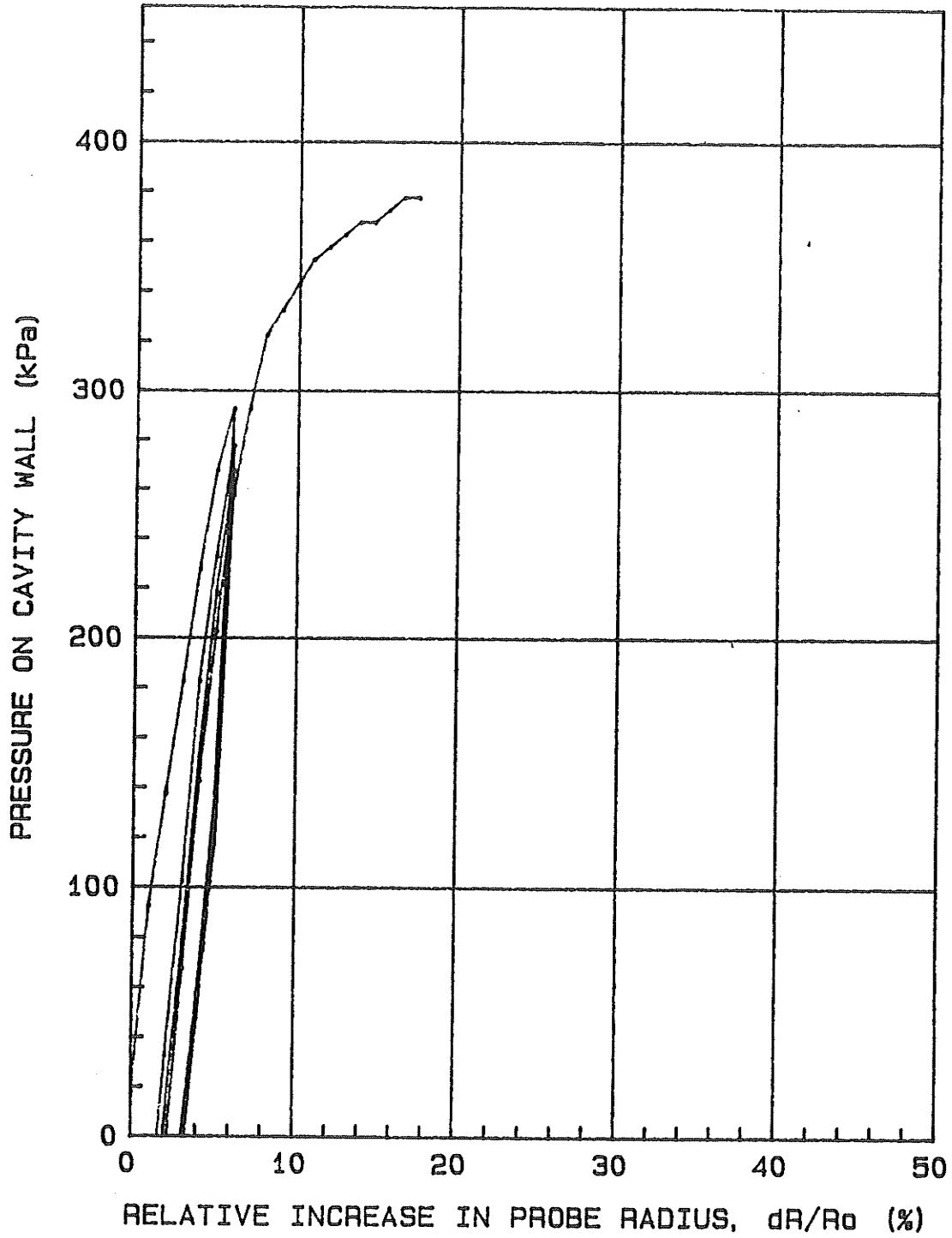
Eo = 35655 kPa  
Er =            kPa  
Eo/P1\* =



Regina R/W12-30: October/88: 5+700: 3mRt: Hole#5: 0.71m.

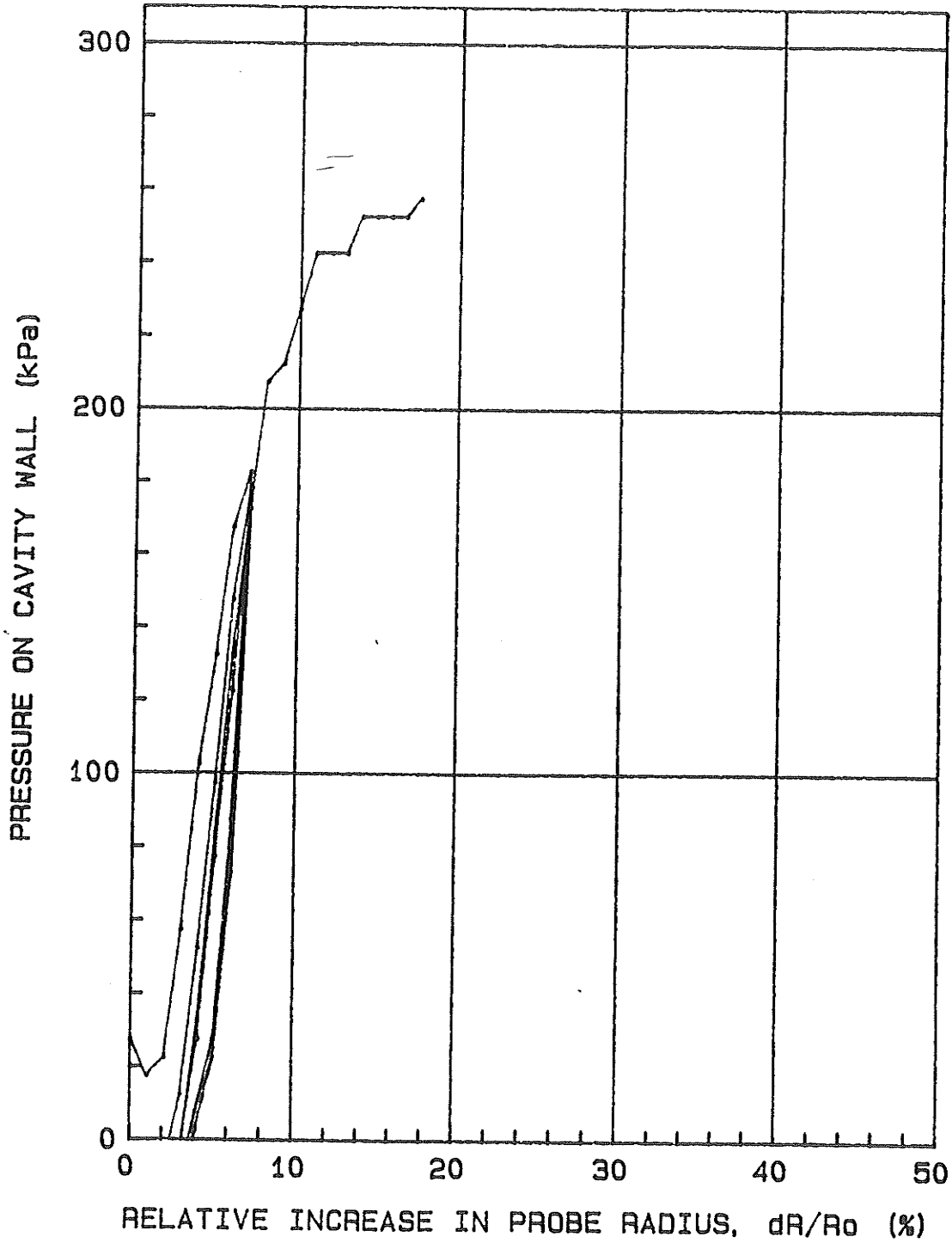
Po = 14 kPa  
P1 = 370 kPa  
P1\* = 356 kPa

Eo = 10026 kPa  
Er = 9381 kPa  
Eo/P1\* = 28.1



Regina R/W12-30: October/88: 5+700: 3mRt: Hole#5: 1.30m.

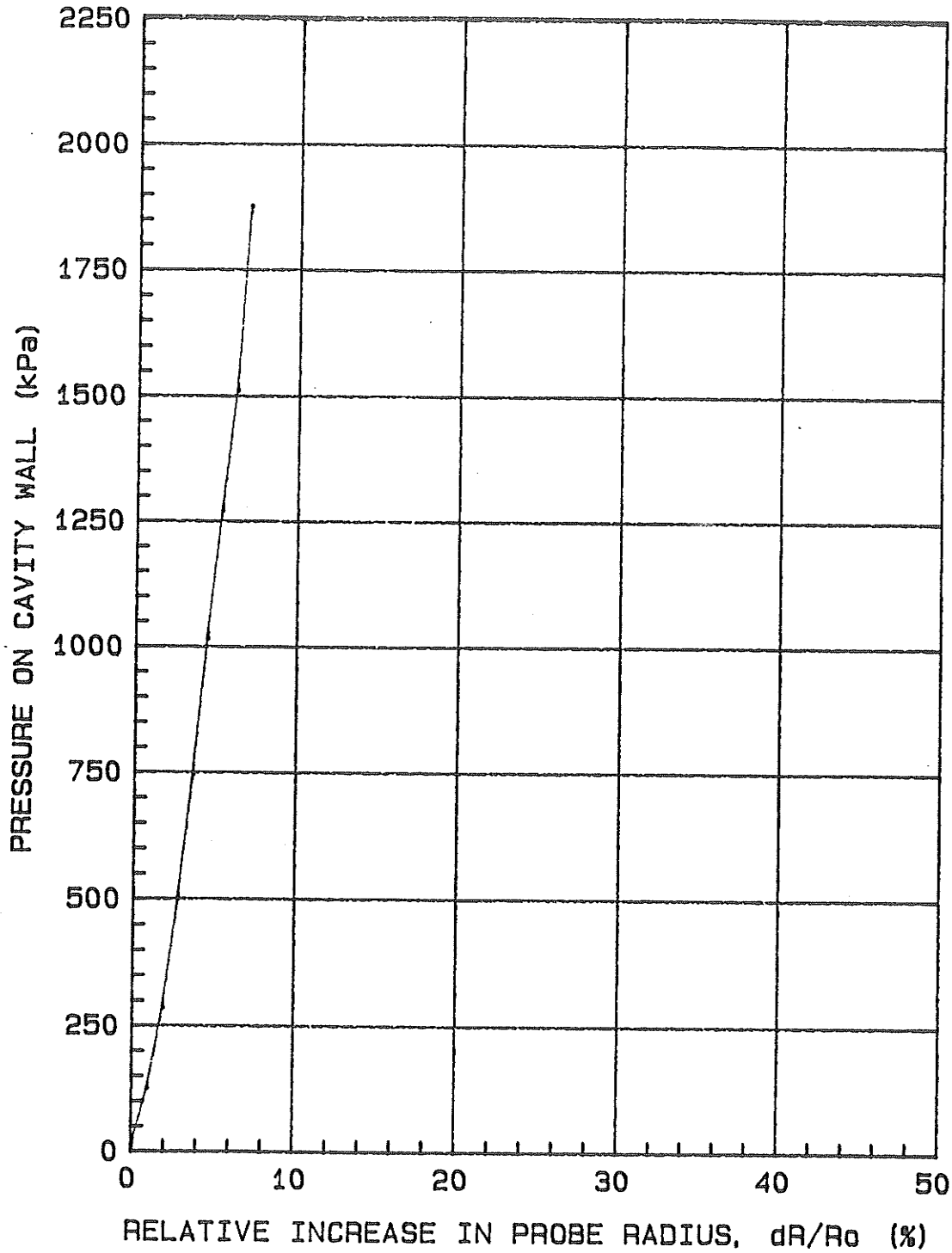
Po = 24.8 kPa      Eo = 5460 kPa  
P1 = 240 kPa      Er = 6954 kPa  
P1\* = 215.2 kPa    Eo/P1\* = 25.3



Regina R/W12-30: October/88: 5+700: 3mRt: Hole#5: 2.30m.



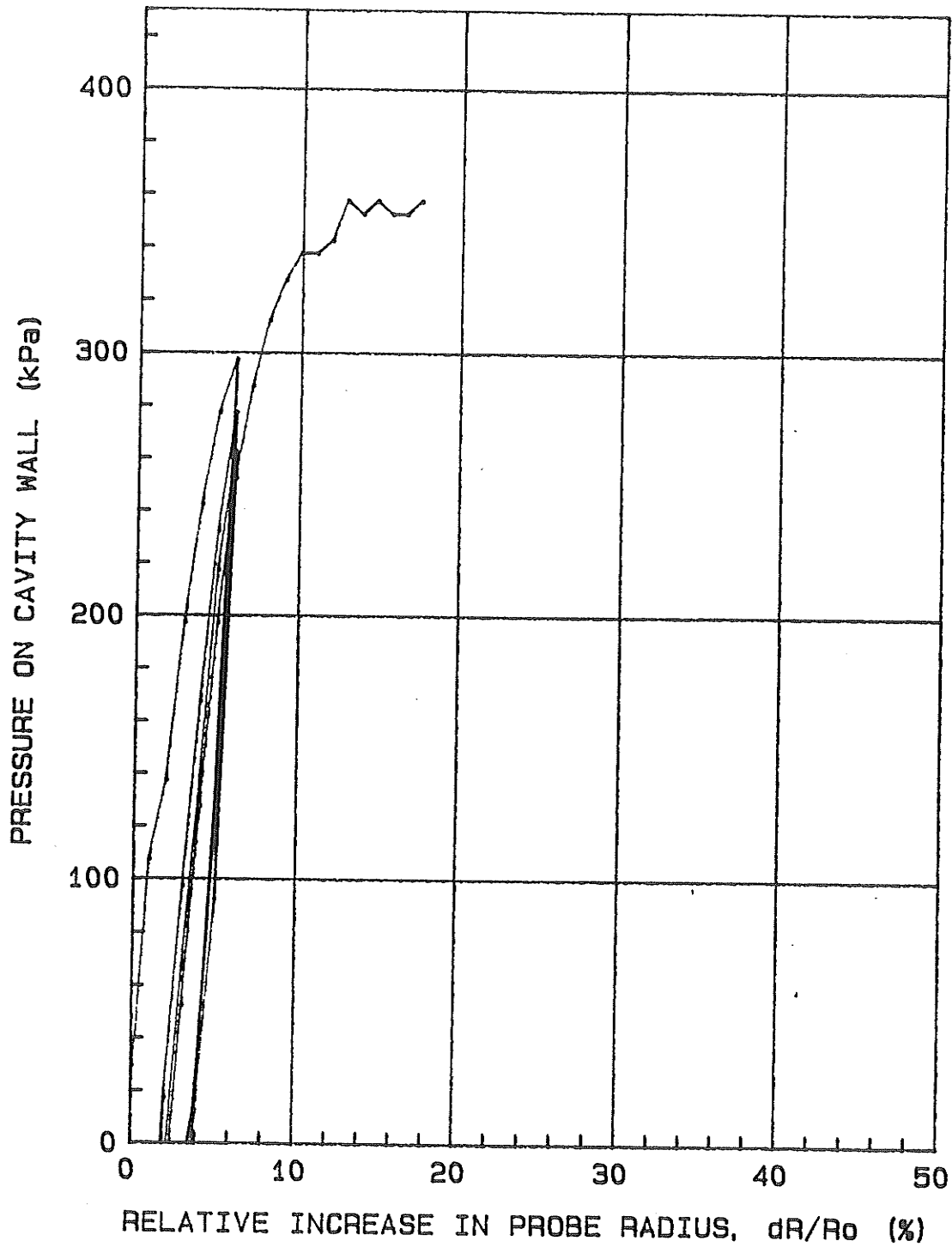
$P_0 = 7.6 \text{ kPa}$                        $E_0 = 41535 \text{ kPa}$   
 $P_1 = \quad \quad \quad \text{kPa}$                        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \quad \text{kPa}$                        $E_0/P_{1*} =$



Regina R/W12-30: October/88: 5+800: 3mLt: Hole#6: 0.72m.

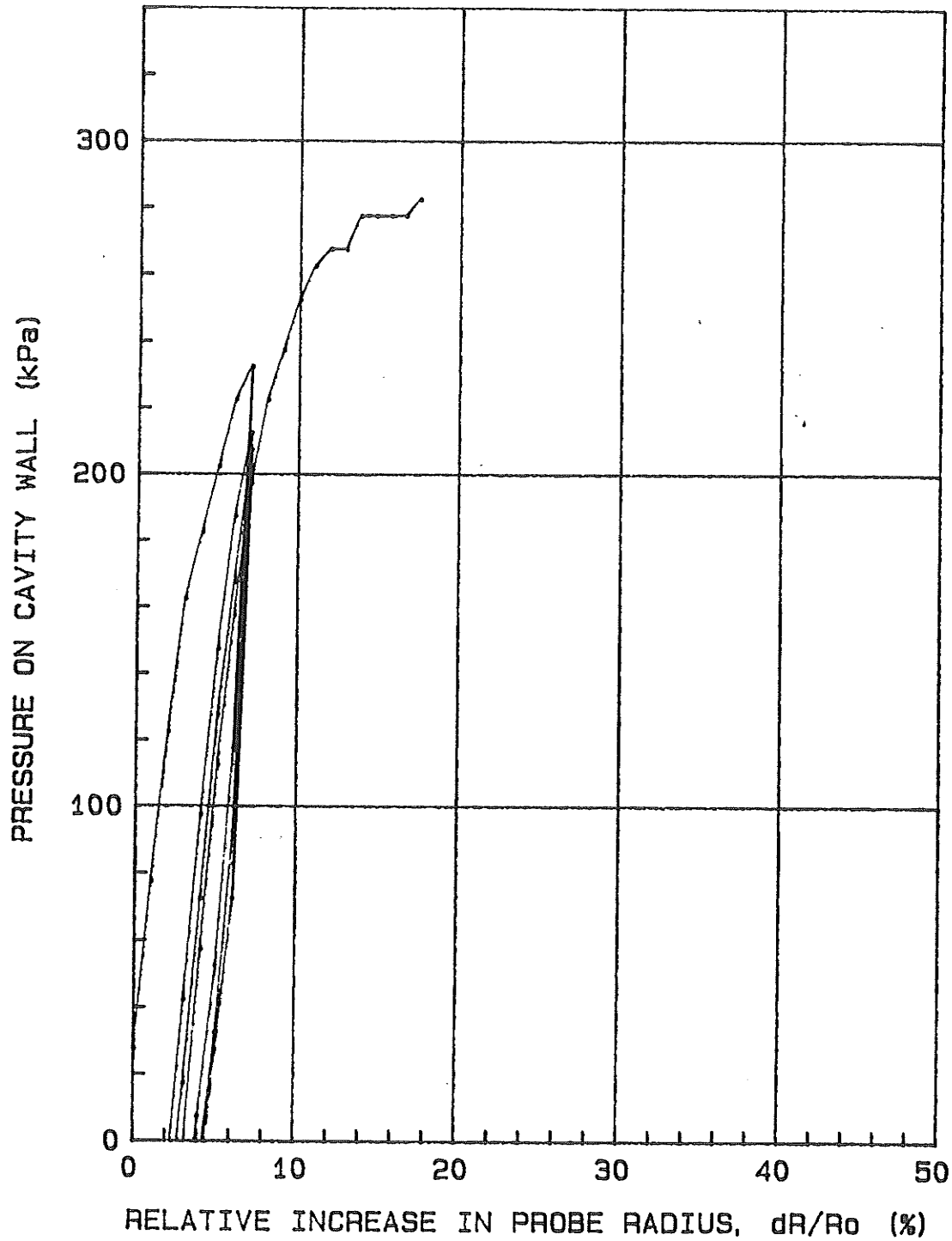
Po = 14 kPa  
P1 = 335 kPa  
P1\* = 321 kPa

Eo = 12163 kPa  
Er = 9524 kPa  
Eo/P1\* = 37.8



Regina R/W12-30: October/88: 5+800: 3mLt: Hole#6: 1.30m.

Po = 24.8 kPa      Eo = 6002 kPa  
P1 = 265 kPa      Er = 7133 kPa  
P1\* = 240.2 kPa    Eo/P1\* = 24.9



Regina R/W12-30: October/88: 5+800: 3mLt: Hole#6: 2.30m.

Po = 7 kPa

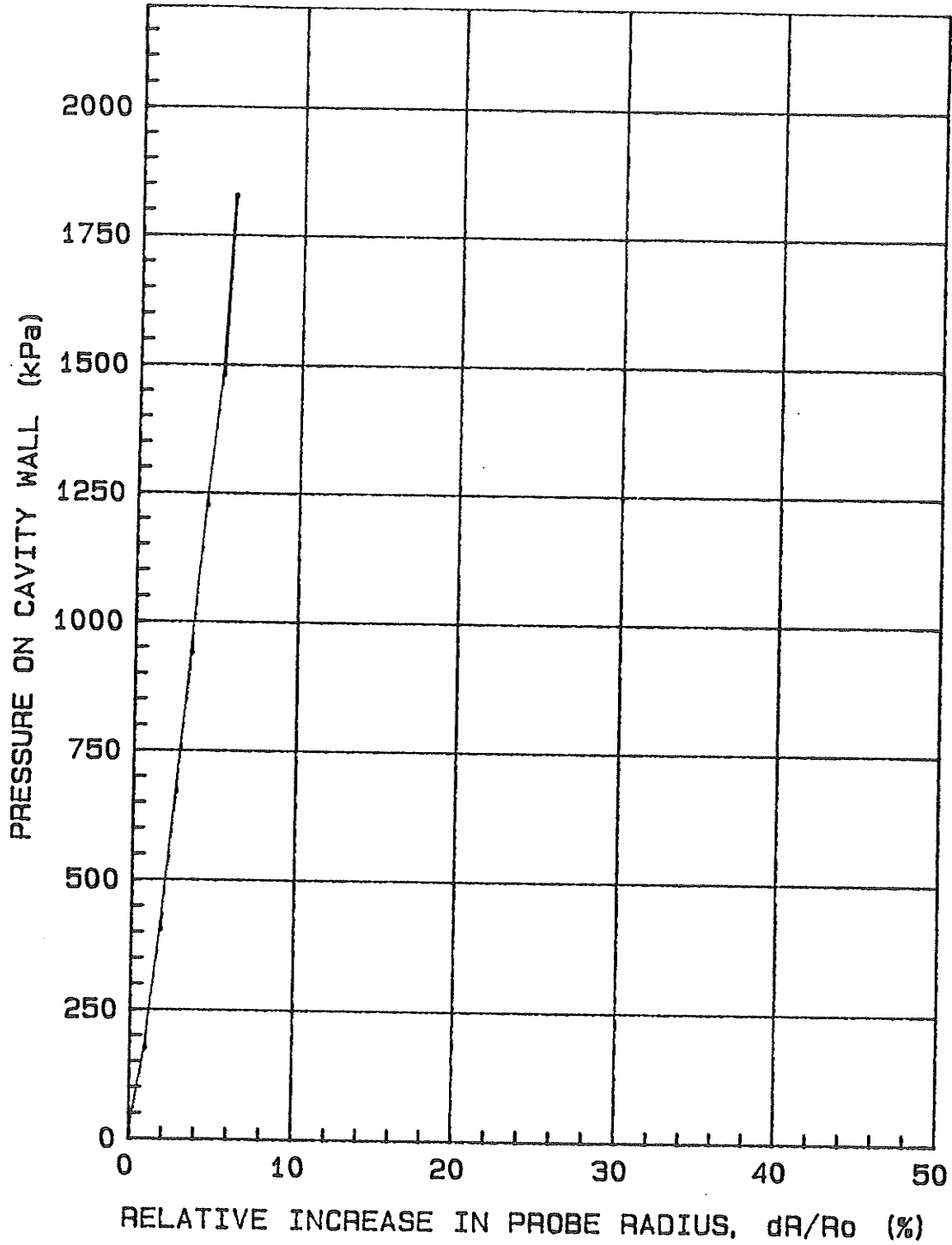
Eo = 44019 kPa

P1 = kPa

Er = kPa

P1\* = kPa

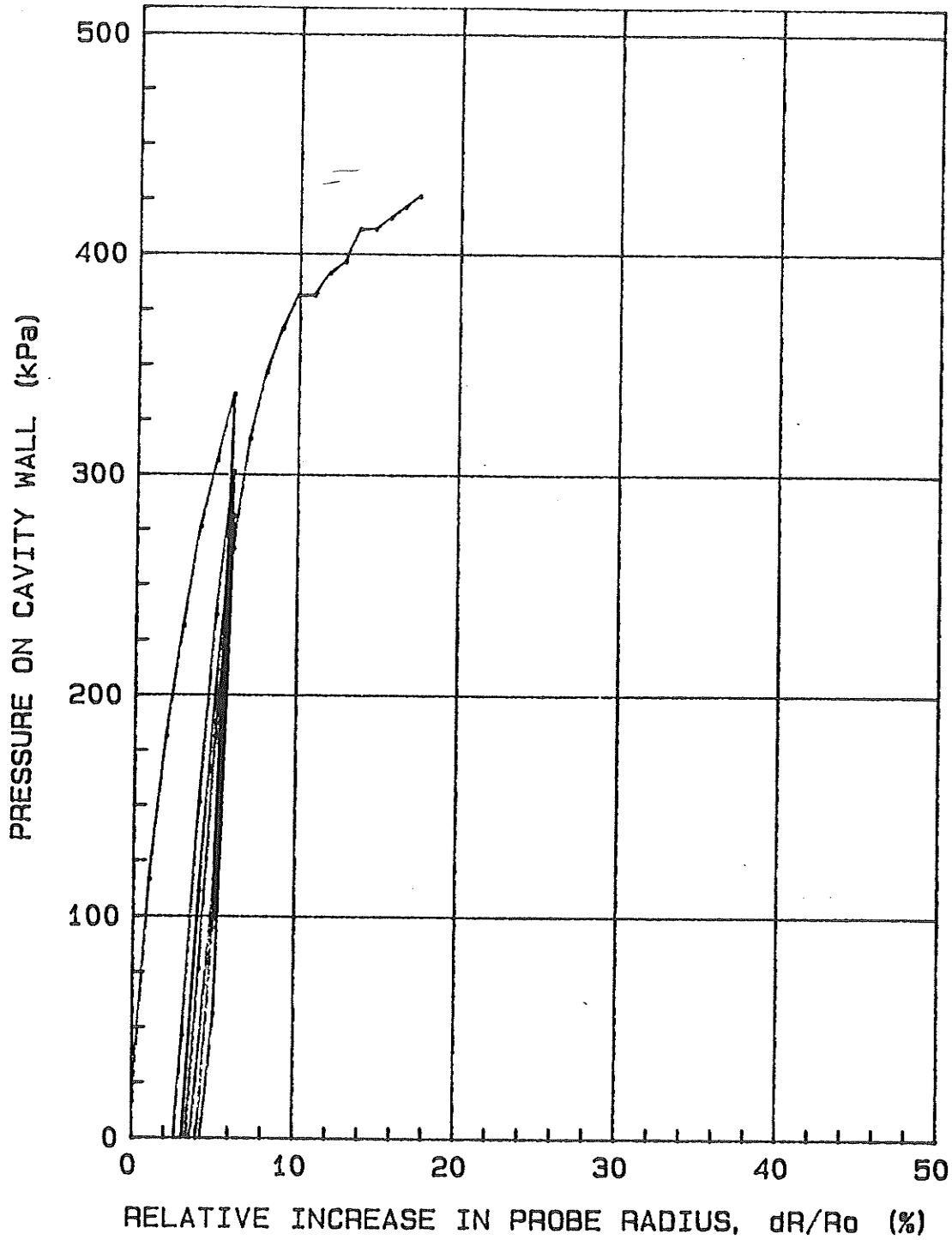
Eo/P1\* =



Regina R/W12-30: October/88: 6+000: 3mLt: Hole#7: 0.67m.

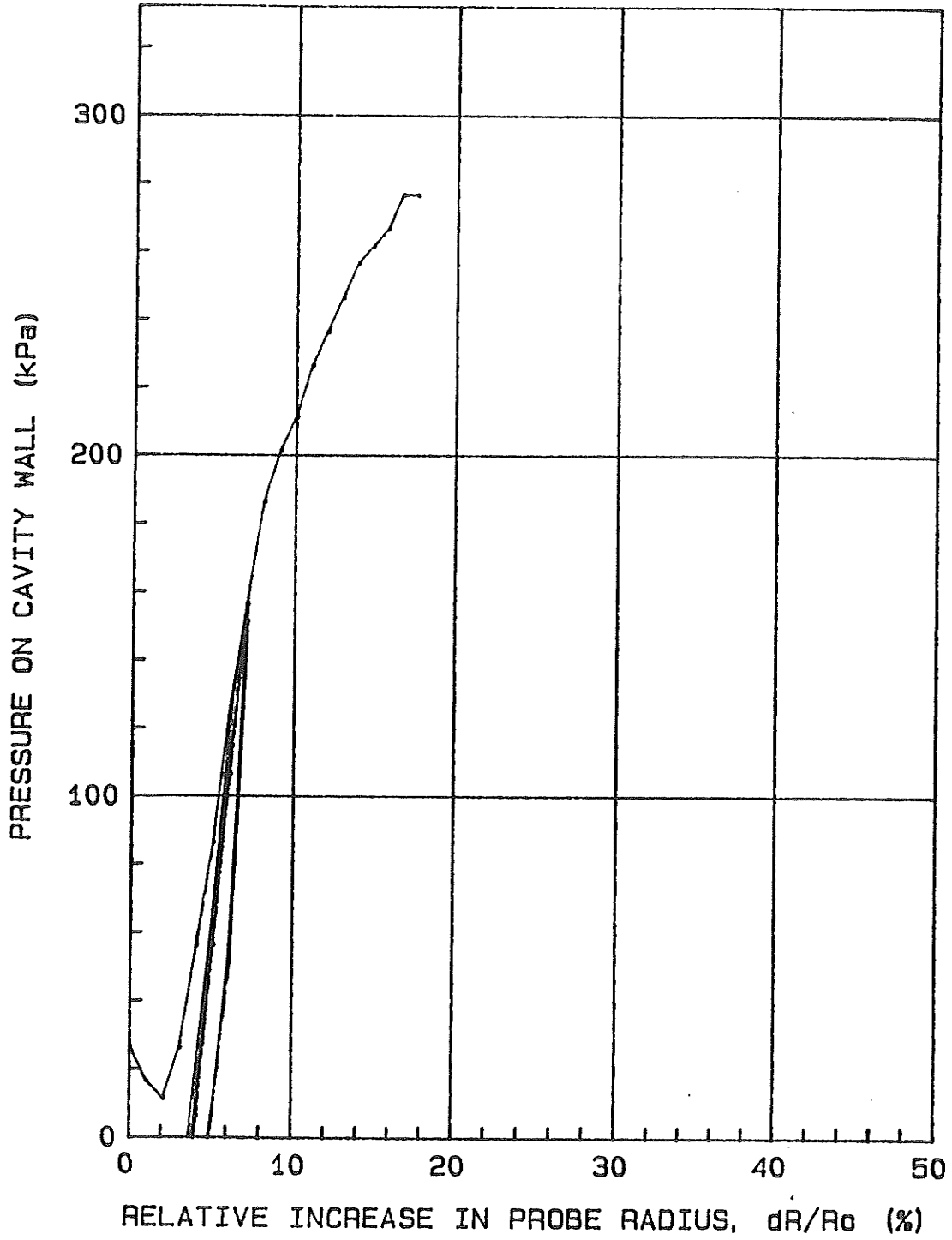
Po = 13 kPa  
P1 = 380 kPa  
P1\* = 367 kPa

Eo = 13613 kPa  
Er = 14118 kPa  
Eo/P1\* = 37



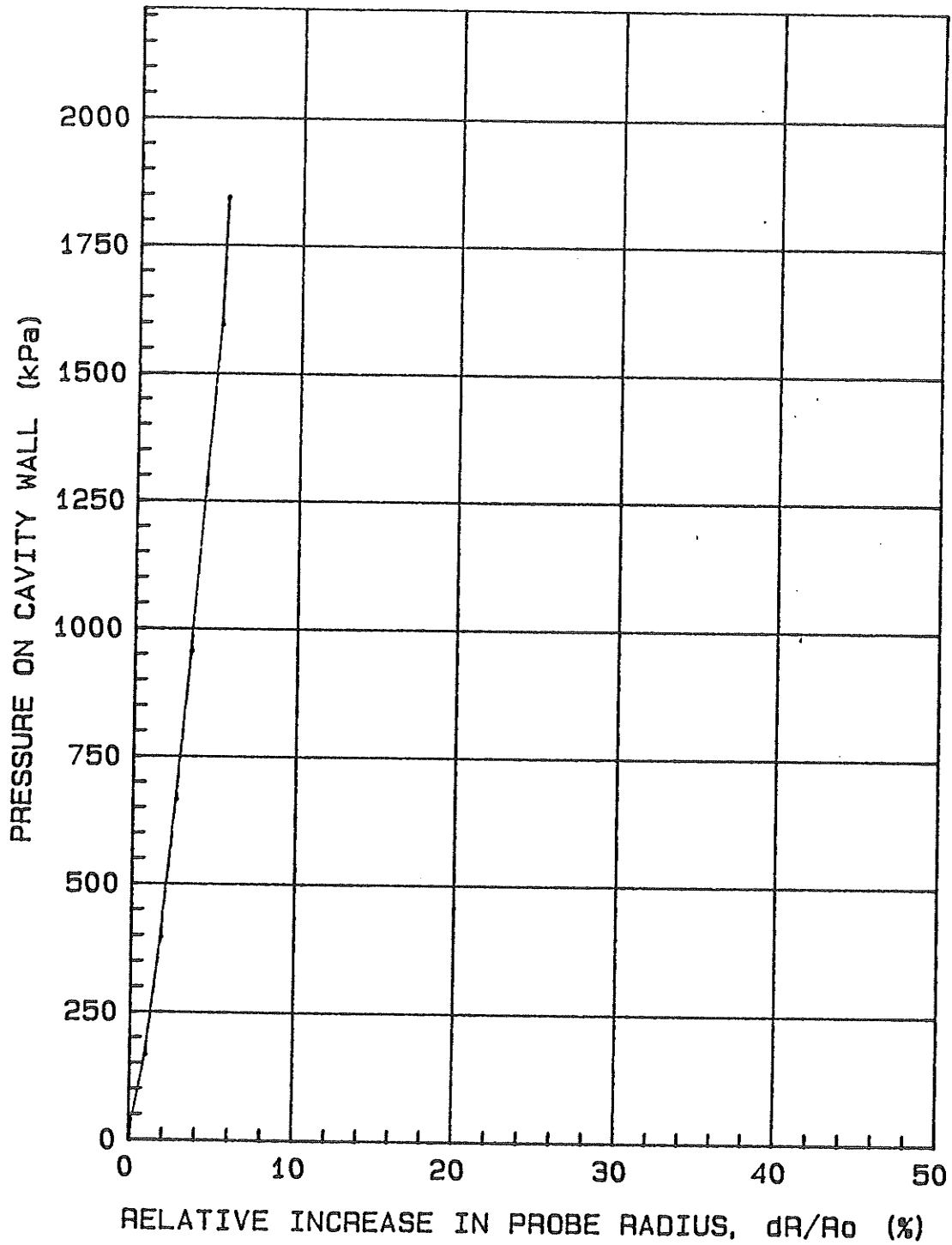
Regina R/W12-30: October/88: 6+000: 3mLt: Hole#7: 1.20m.

Po = 23.8 kPa      Eo = 4656 kPa  
P1 = 275 kPa      Er = 7204 kPa  
P1\* = 251.2 kPa    Eo/P1\* = 18.5



Regina R/W12-30: October/88: 6+000: 3mLt: Hole#7: 2.20m.

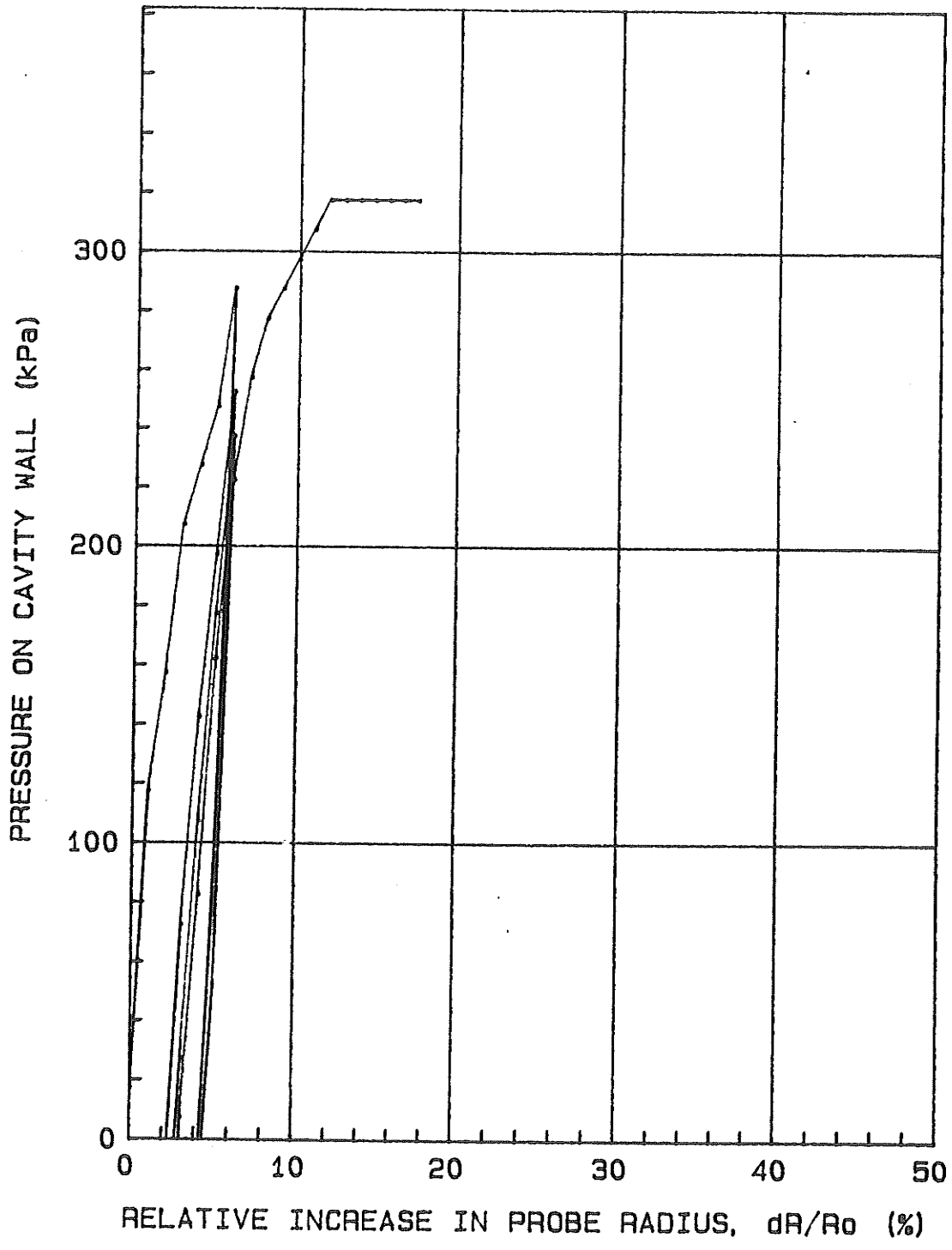
$P_0 = 7.8 \text{ kPa}$        $E_0 = 52923 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



Regina R/W12-30: October/88: 6+100: 3mRt: Hole#8: 0.74m.

Po = 14 kPa  
P1 = 320 kPa  
P1\* = 306 kPa

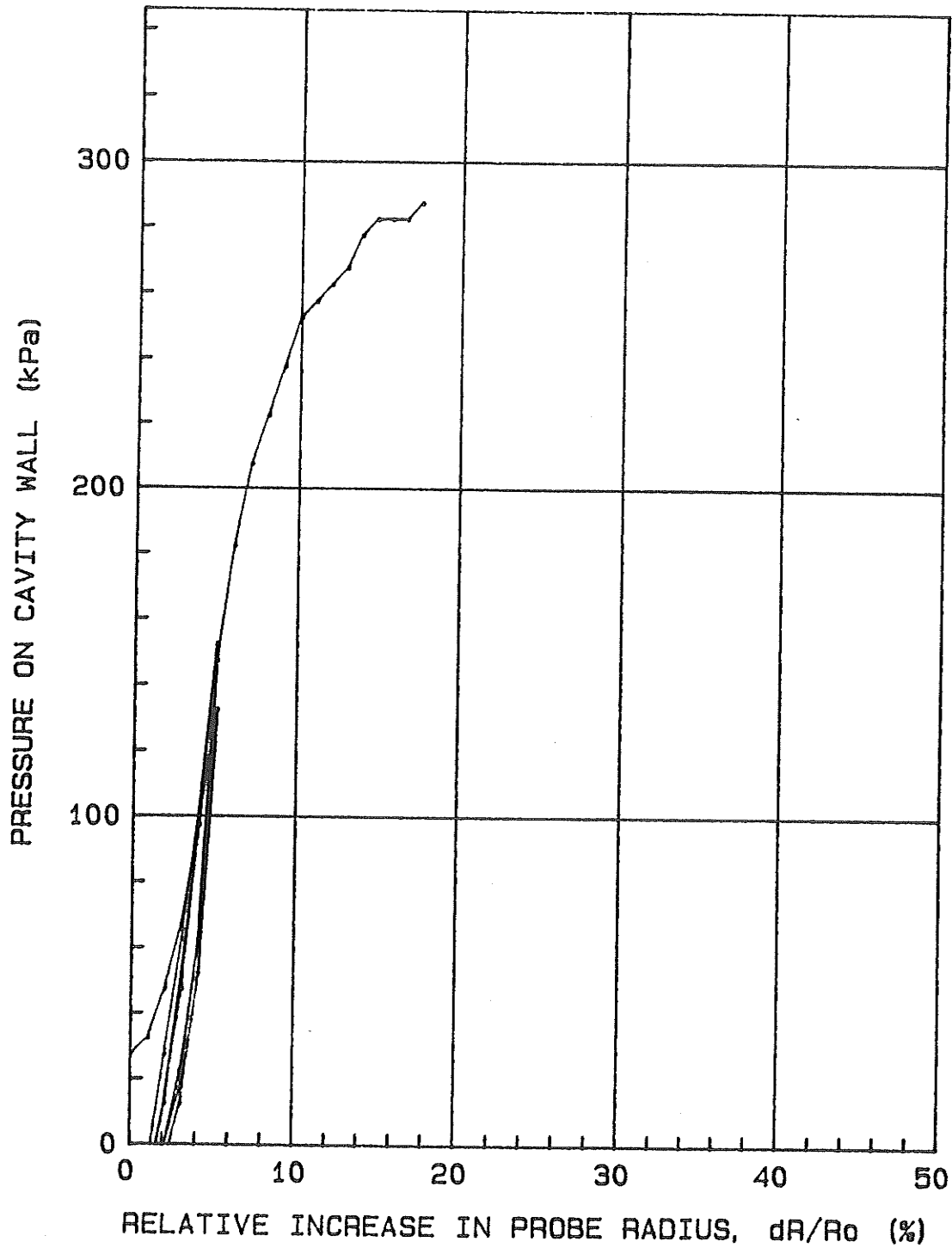
Eo = 13613 kPa  
Er = 10280 kPa  
Eo/P1\* = 44.4



Regina R/W12-30: October/88: 6+100: 3mRt: Hole#8: 1.30m.



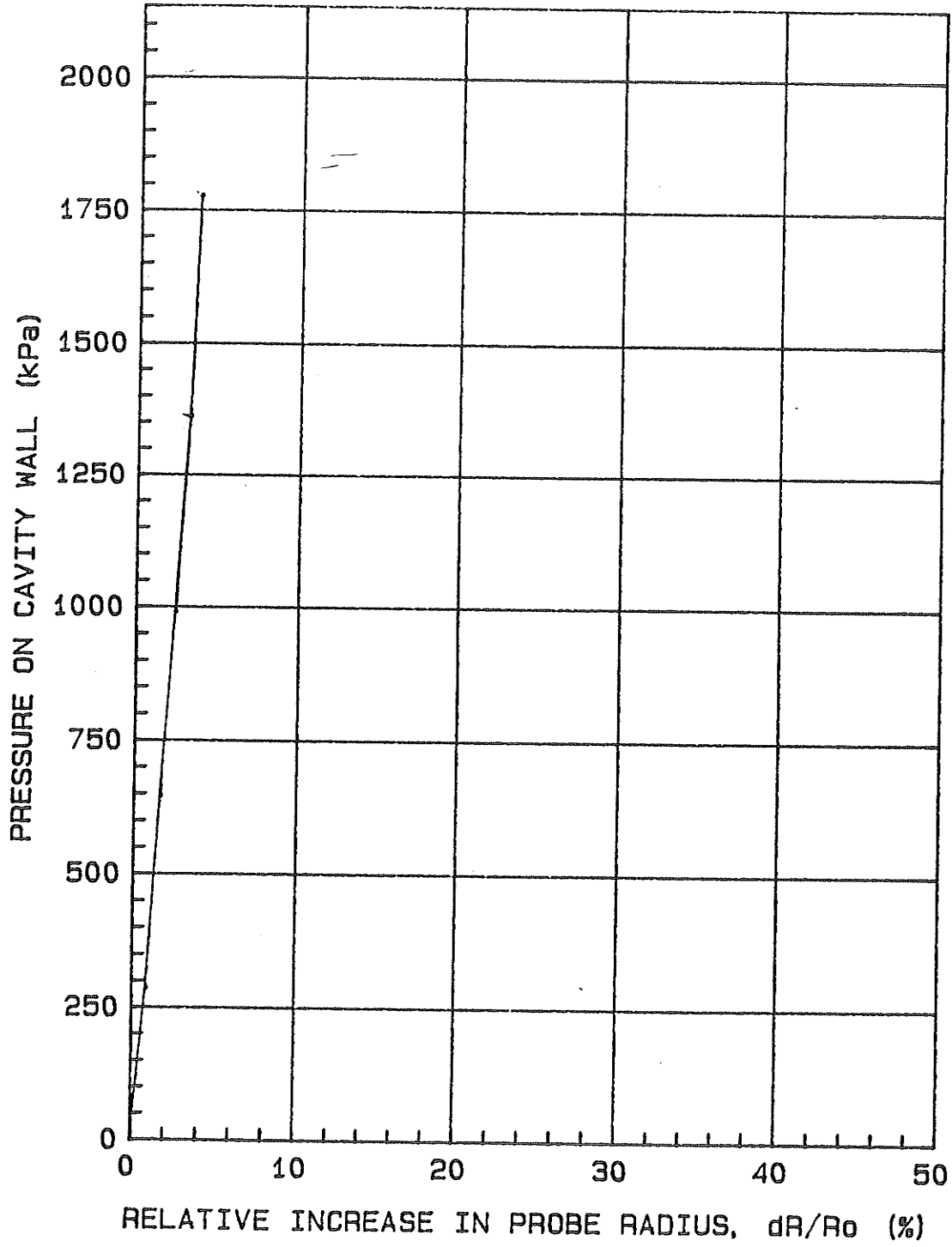
$P_0 = 24.8 \text{ kPa}$        $E_0 = 4491 \text{ kPa}$   
 $P_1 = 285 \text{ kPa}$        $E_r = 6221 \text{ kPa}$   
 $P_{1*} = 260.2 \text{ kPa}$        $E_0/P_{1*} = 17.2$



Regina R/W12-30: October/88: 6+100: 3mRt: Hole#8: 2.30m.

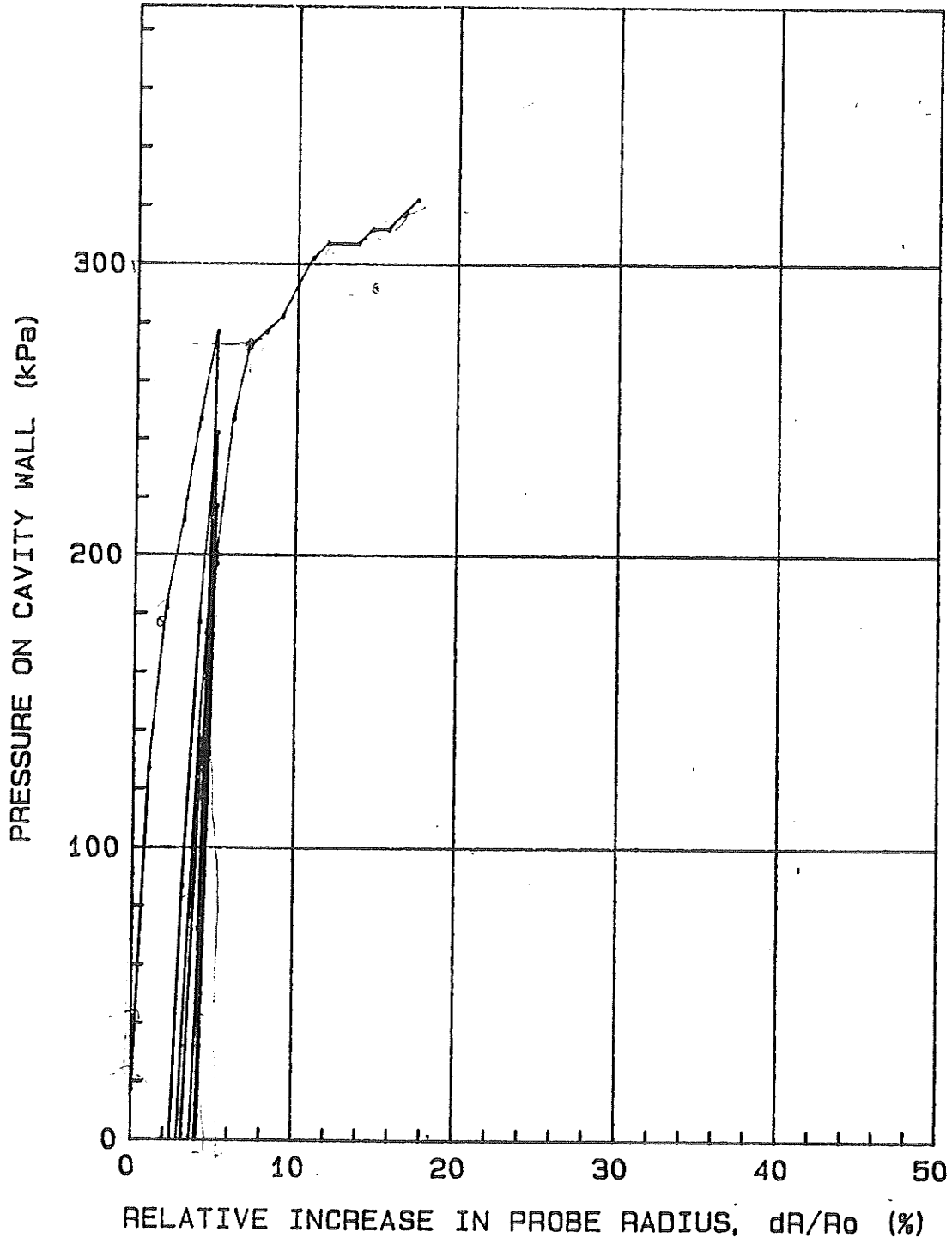
Po = 7.5 kPa  
P1 = kPa  
P1\* = kPa

Eo = 61876 kPa  
Er = kPa  
Eo/P1\* =



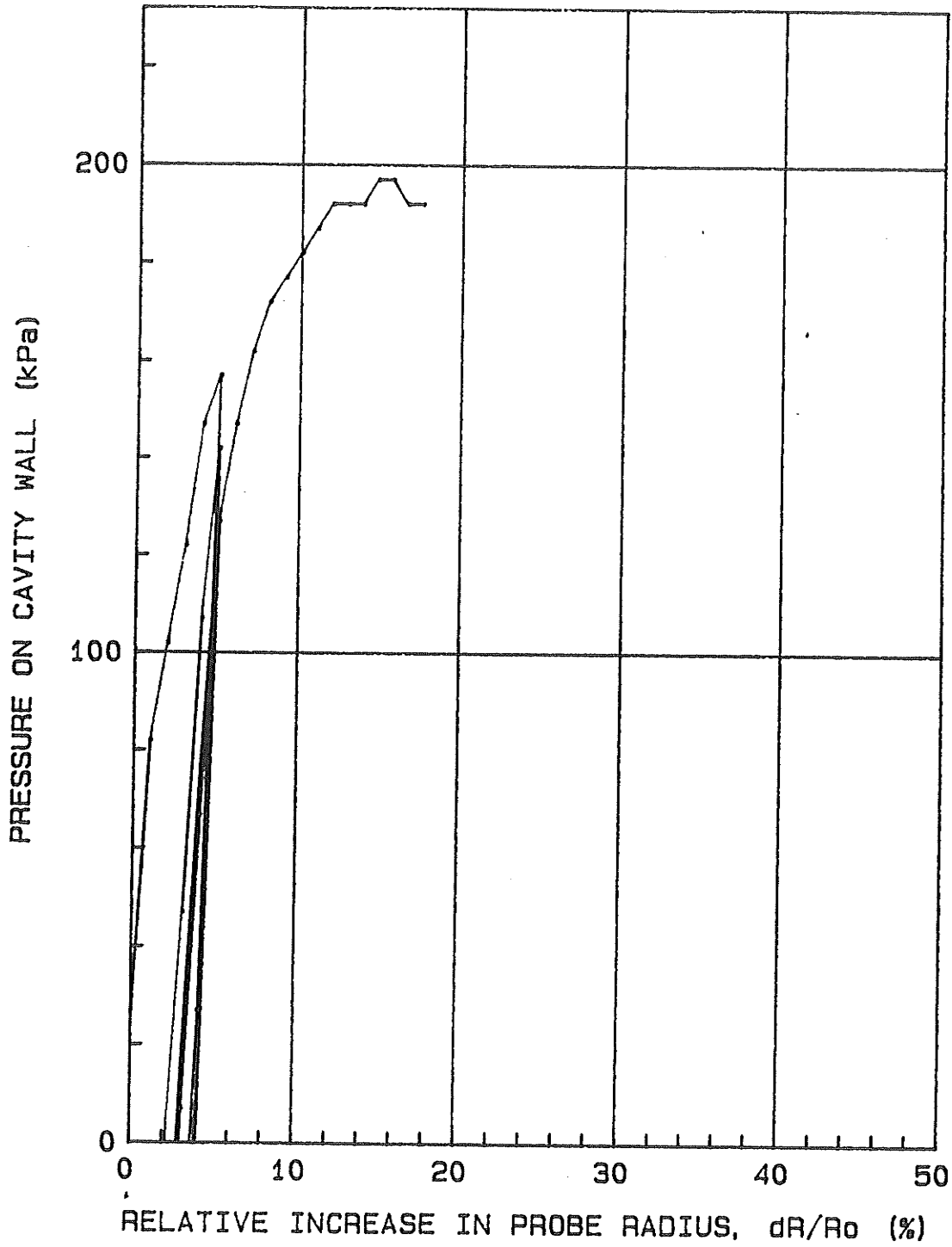
Regina R/W12-30: October/88: 6+300: 3mRt: Hole#9: 0.71m.

Po = 13.5 kPa      Eo = 15085 kPa  
P1 = 310 kPa      Er = 14114 kPa  
P1\* = 296.5 kPa    Eo/P1\* = 50.8



Regina R/W12-30: October/88: 6+300: 3mRt: Hole#9: 1.25m.

Po = 24.3 kPa      Eo = 7248 kPa  
P1 = 190 kPa      Er = 8458 kPa  
P1\* = 165.7 kPa    Eo/P1\* = 43.7



Regina R/W12-30: October/88: 6+300: 3mRt: Hole#9: 2.25m.

Po = 8 kPa

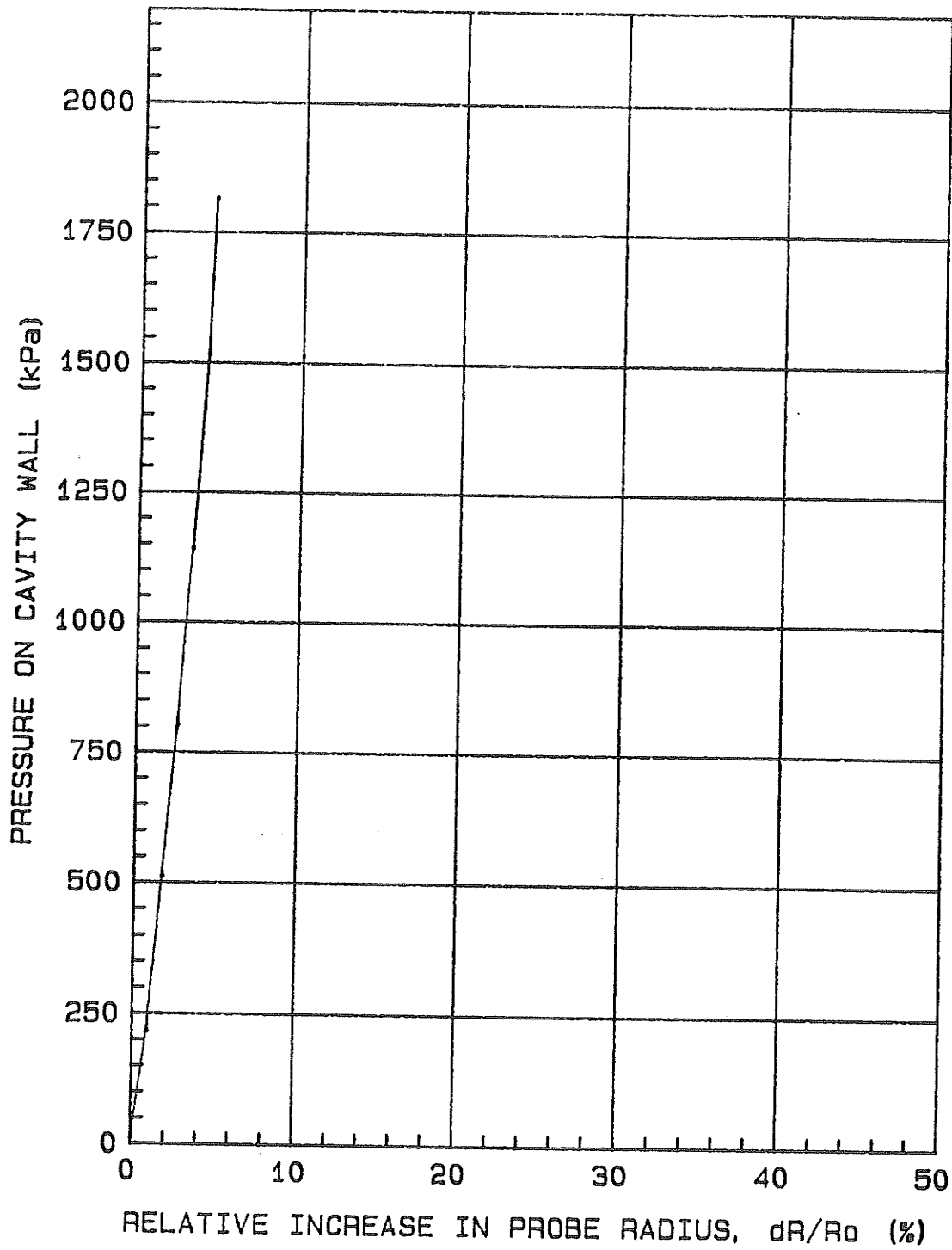
Eo = 63000 kPa

P1 = kPa

Er = kPa

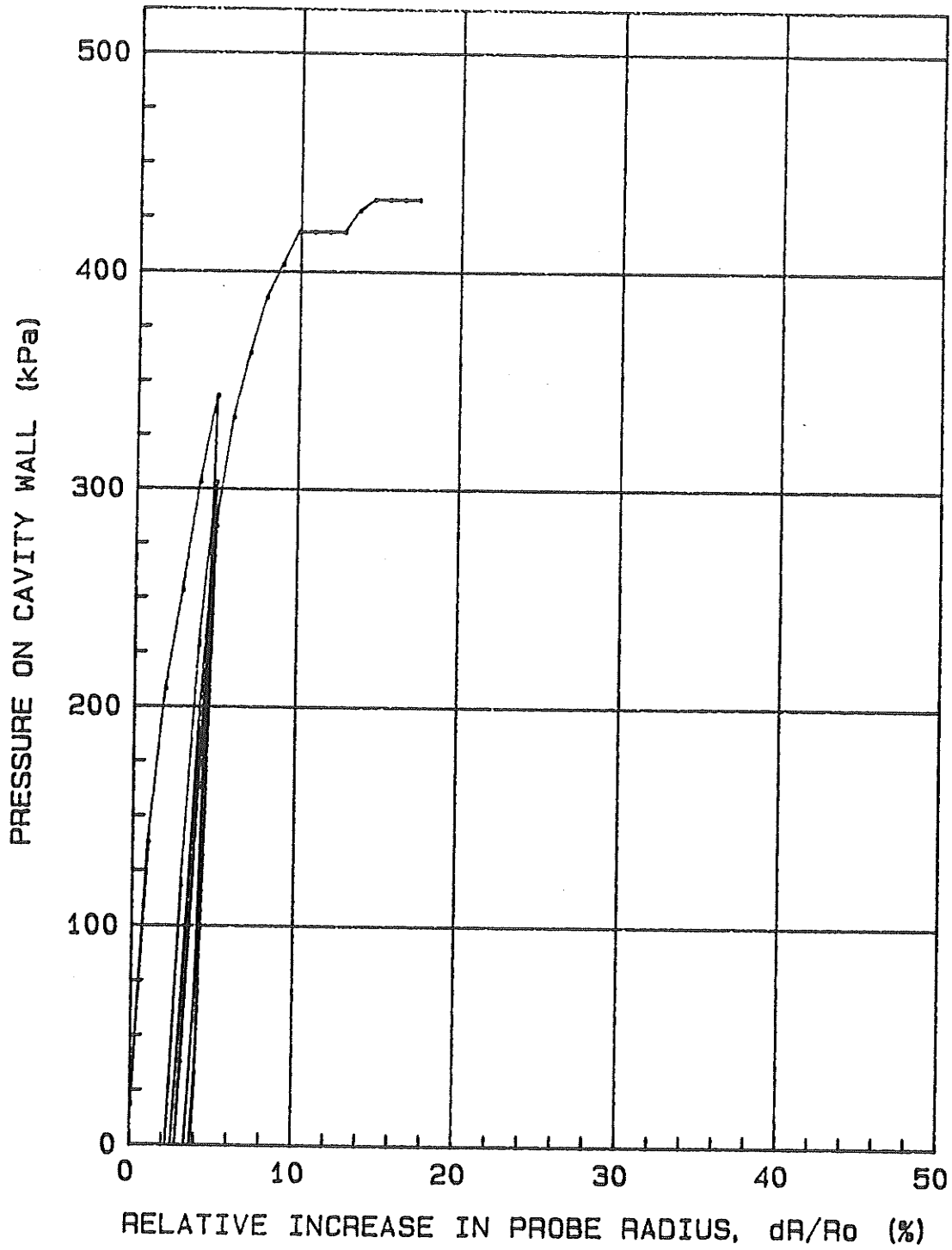
P1\* = kPa

Eo/P1\* =



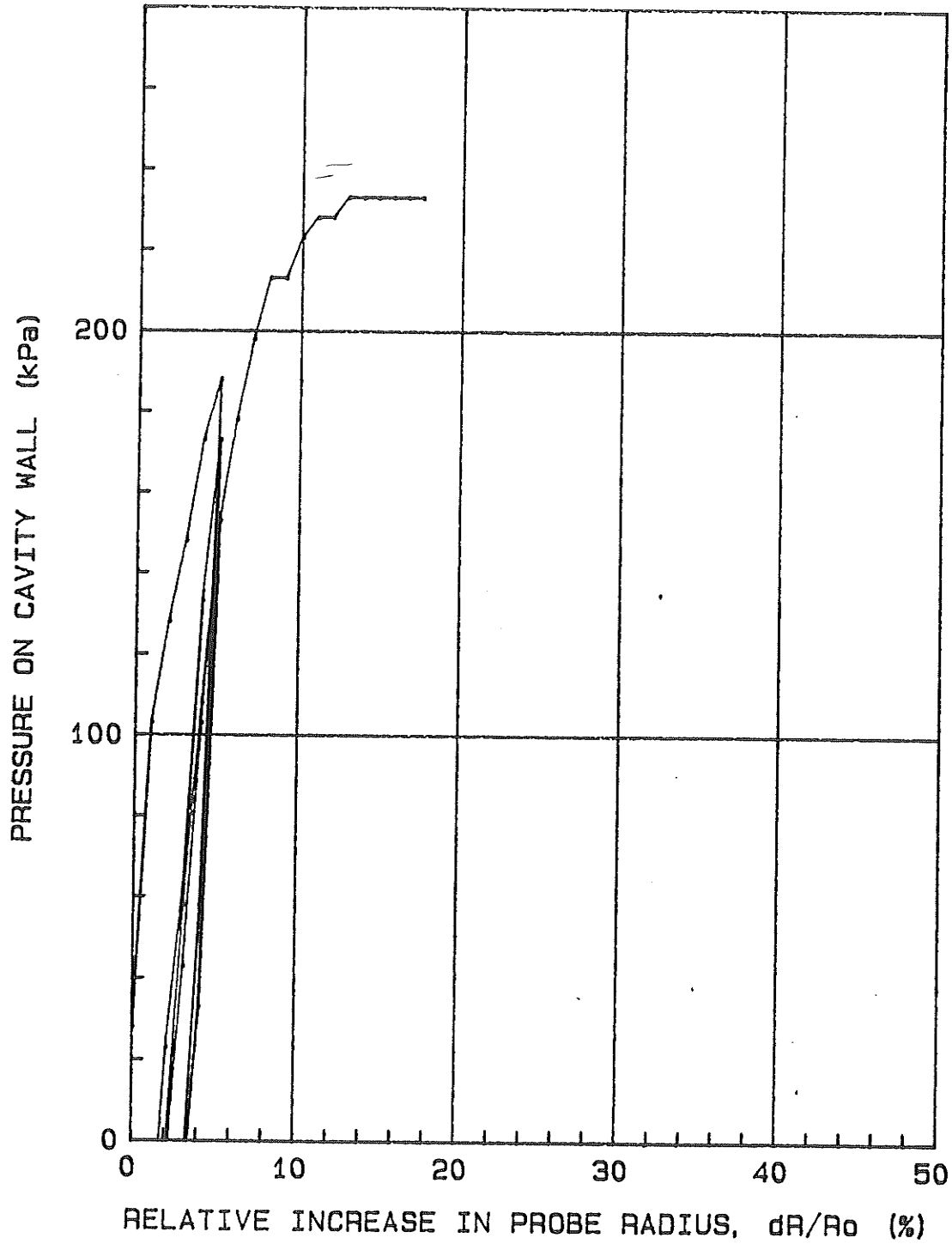
Regina R/W12-30: October/88: 6+400: 3mLt: Hole#10: 0.76m.

Po = 14.6 kPa      Eo = 16578 kPa  
P1 = 420 kPa      Er = 18049 kPa  
P1\* = 405.4 kPa    Eo/P1\* = 40.8



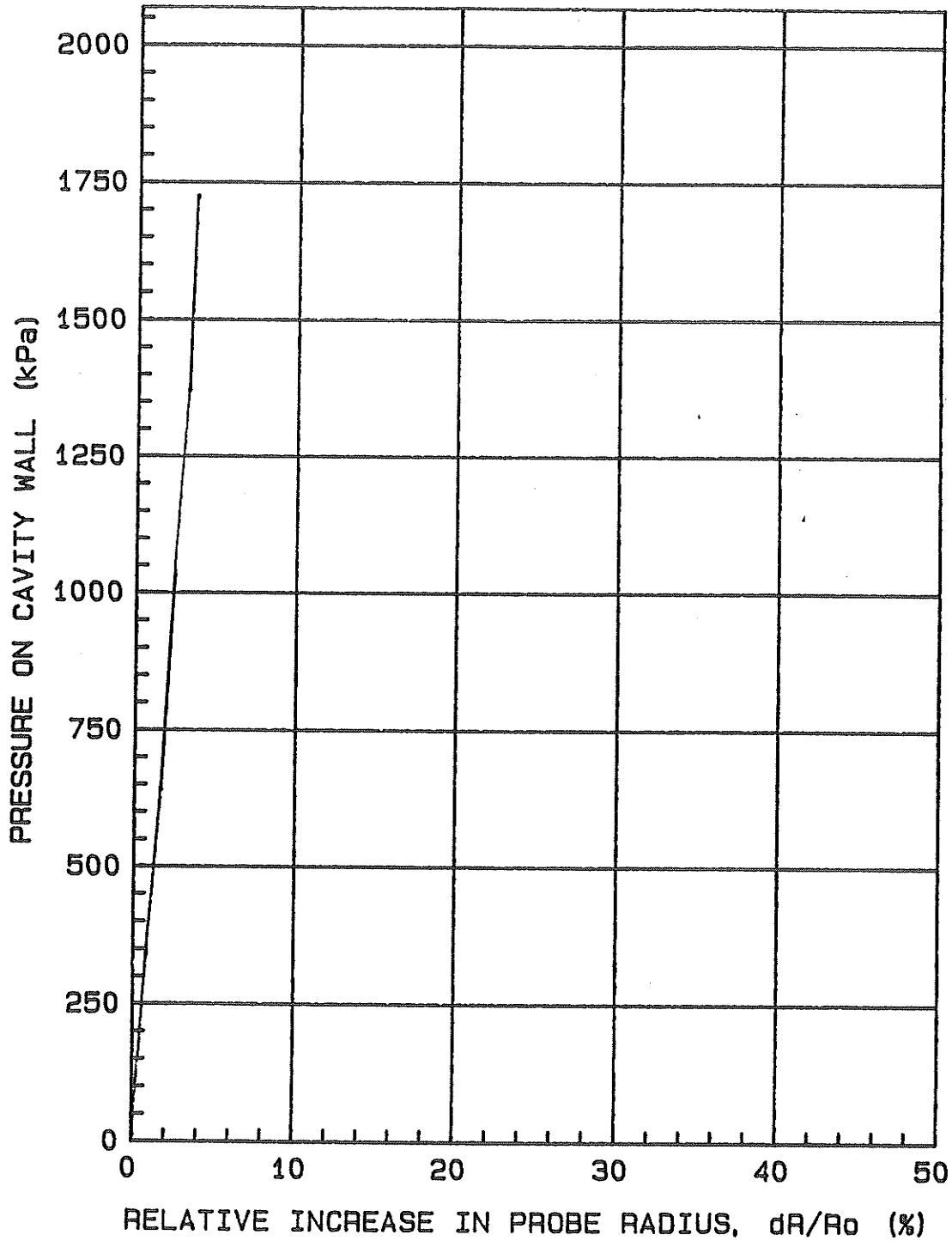
Regina R/W12-30: October/BB: 6+400: 3mLt: Hole#10: 1.35m.

$P_0 = 25.4 \text{ kPa}$        $E_0 = 10026 \text{ kPa}$   
 $P_1 = 210 \text{ kPa}$        $E_r = 7409 \text{ kPa}$   
 $P_1^* = 184.6 \text{ kPa}$      $E_0/P_1^* = 54.3$



Regina R/W12-30: October/88: 6+400: 3mLt: Hole#10: 2.35m.

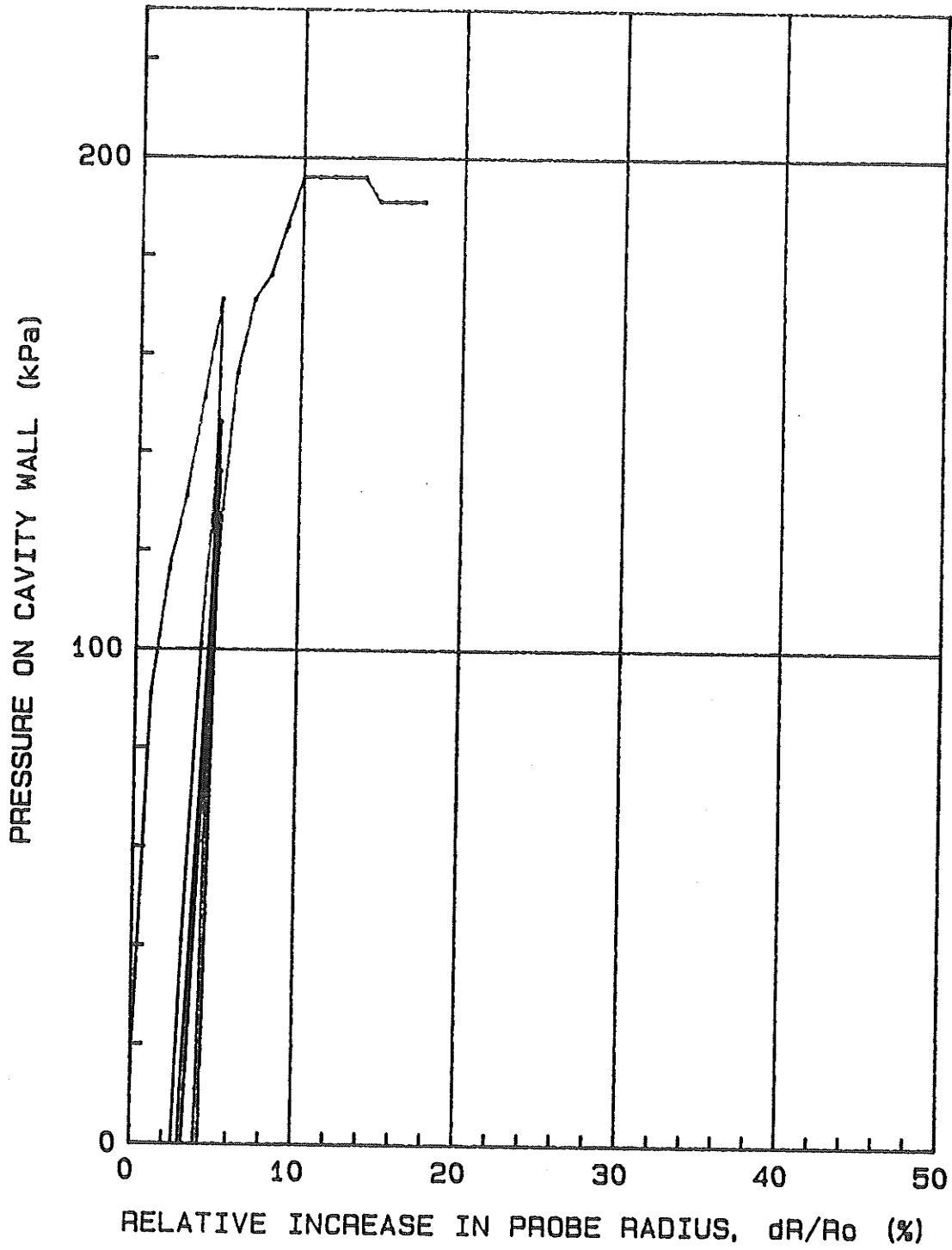
$P_0 = 6.7 \text{ kPa}$        $E_0 = 63749 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



Regina R/W12-30: October/88: 6+850: 3mLt: Hole#11: 0.64m.

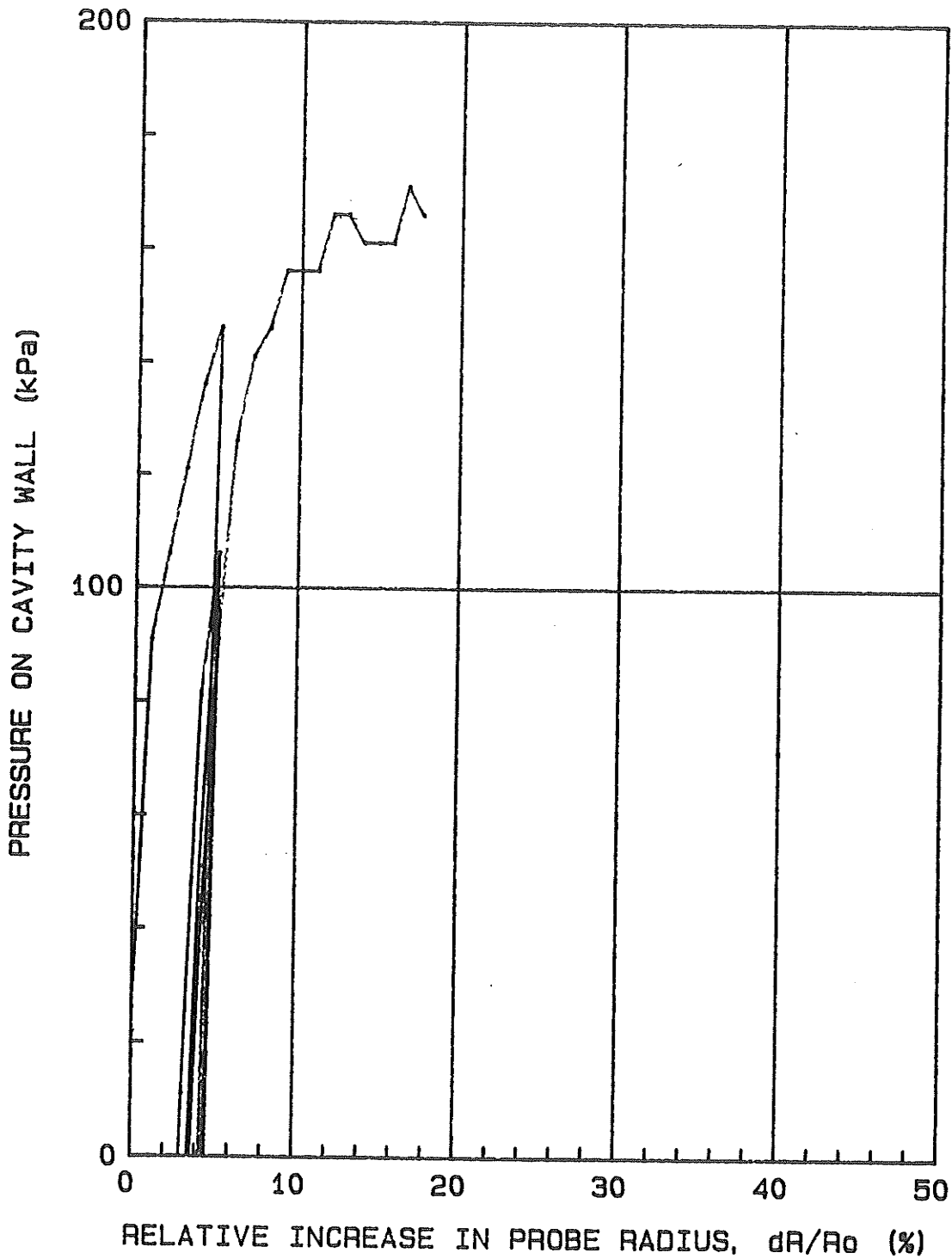


Po = 12.4 kPa      Eo = 10026 kPa  
P1 = 195 kPa      Er = 8826 kPa  
P1\* = 182.6 kPa    Eo/P1\* = 54.9



Regina R/W12-30: October/88: 6+850: 3mLt: Hole#11: 1.15m.

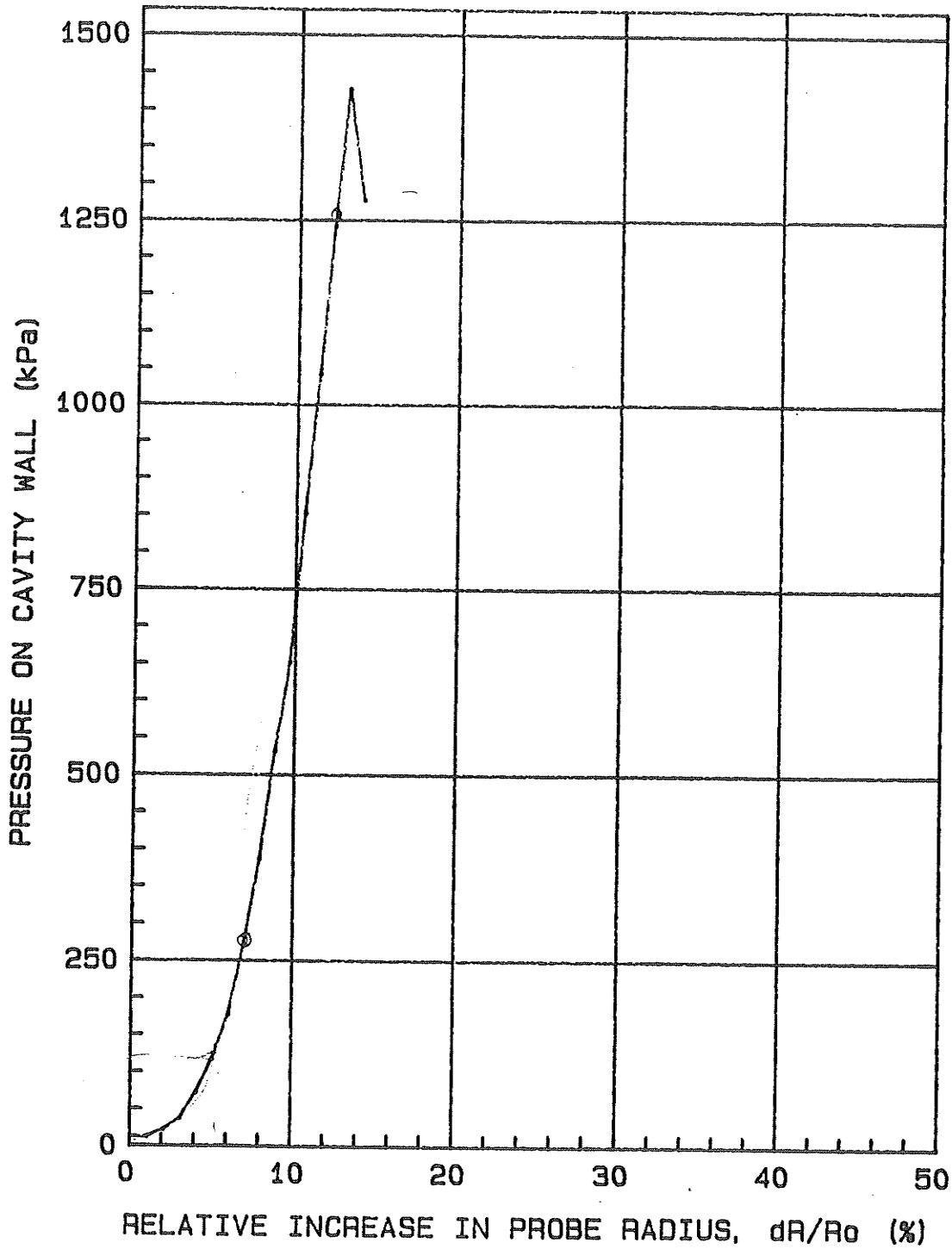
Po = 23.2 kPa      Eo = 8627 kPa  
P1 = 157.5 kPa     Er = 6399 kPa  
P1\* = 134.3 kPa    Eo/P1\* = 64.2



Regina R/W12-30: October/88: 6+850: 3mLt: Hole#11: 2.15m.

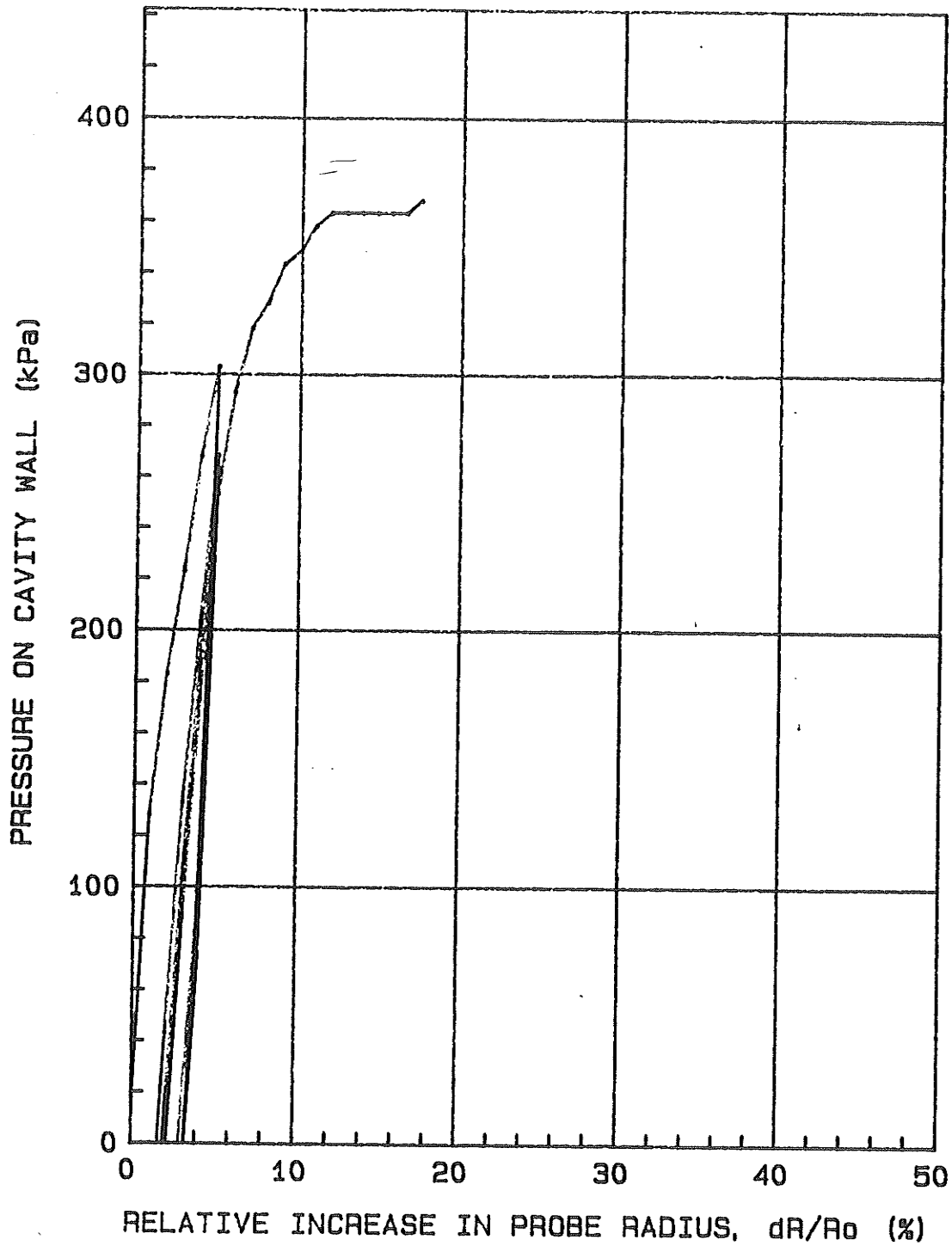
Po = 8 kPa  
P1 = 1425 kPa  
P1\* = 1417 kPa

Eo = 34541 kPa  
Er = kPa  
Eo/P1\* = 24.3



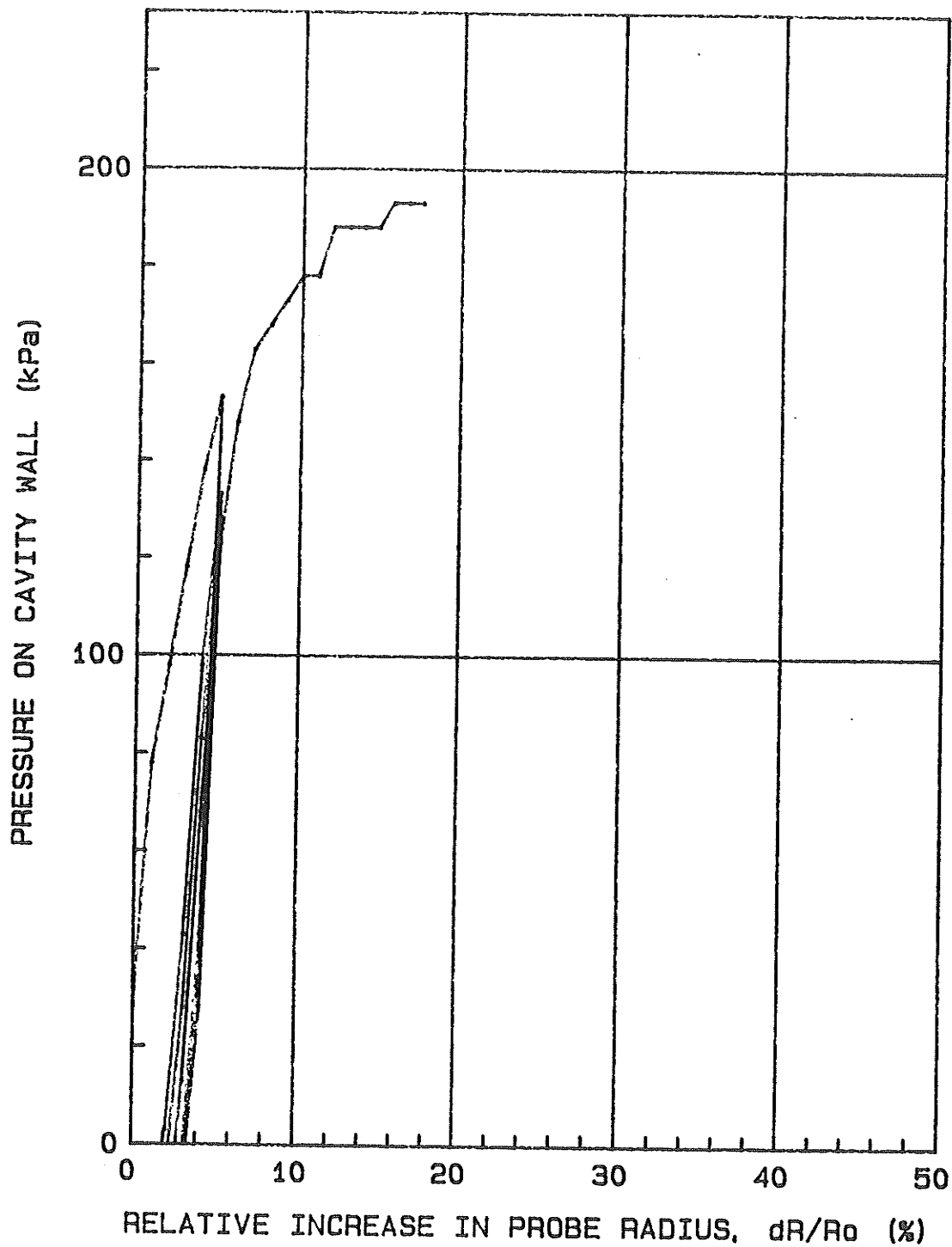
Regina R/W12-30: October/88: 7+050: 3mLt: Hole#12: 0.76m.

Po = 14.6 kPa      Eo = 15085 kPa  
P1 = 365 kPa      Er = 12336 kPa  
P1\* = 350.4 kPa    Eo/P1\* = 43



Regina R/W12-30: October/88: 7+050: 3mLt: Hole#12: 1.35m.

Po = 25.4 kPa      Eo = 6566 kPa  
P1 = 177.5 kPa     Er = 7726 kPa  
P1\* = 152.1 kPa    Eo/P1\* = 43.1



Regina R/W12-30: October/88: 7+050: 3mLt: Hole#12: 2.35m.

Po = 7.9 kPa

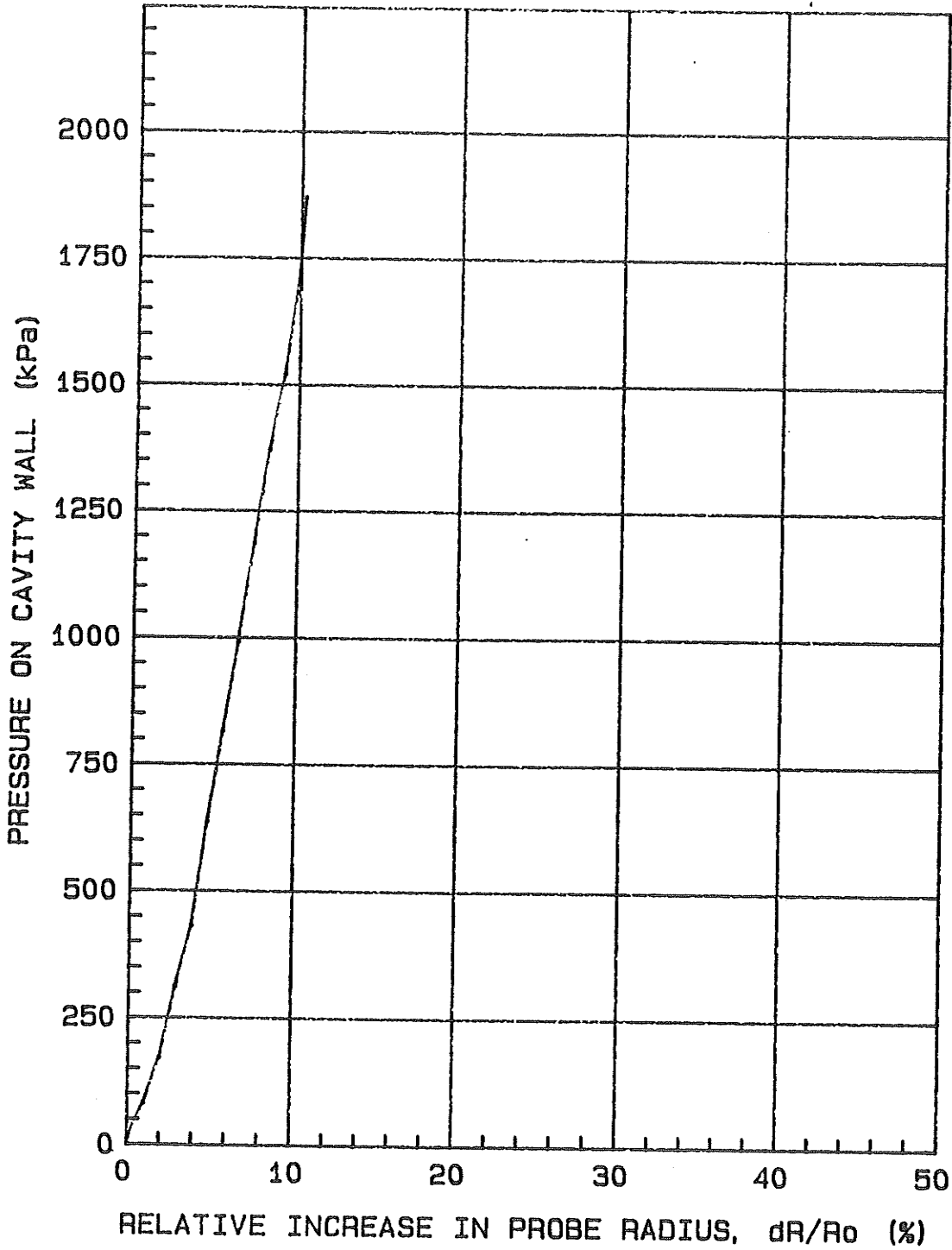
Eo = 30073 kPa

P1 =            kPa

Er =            kPa

P1\* =           kPa

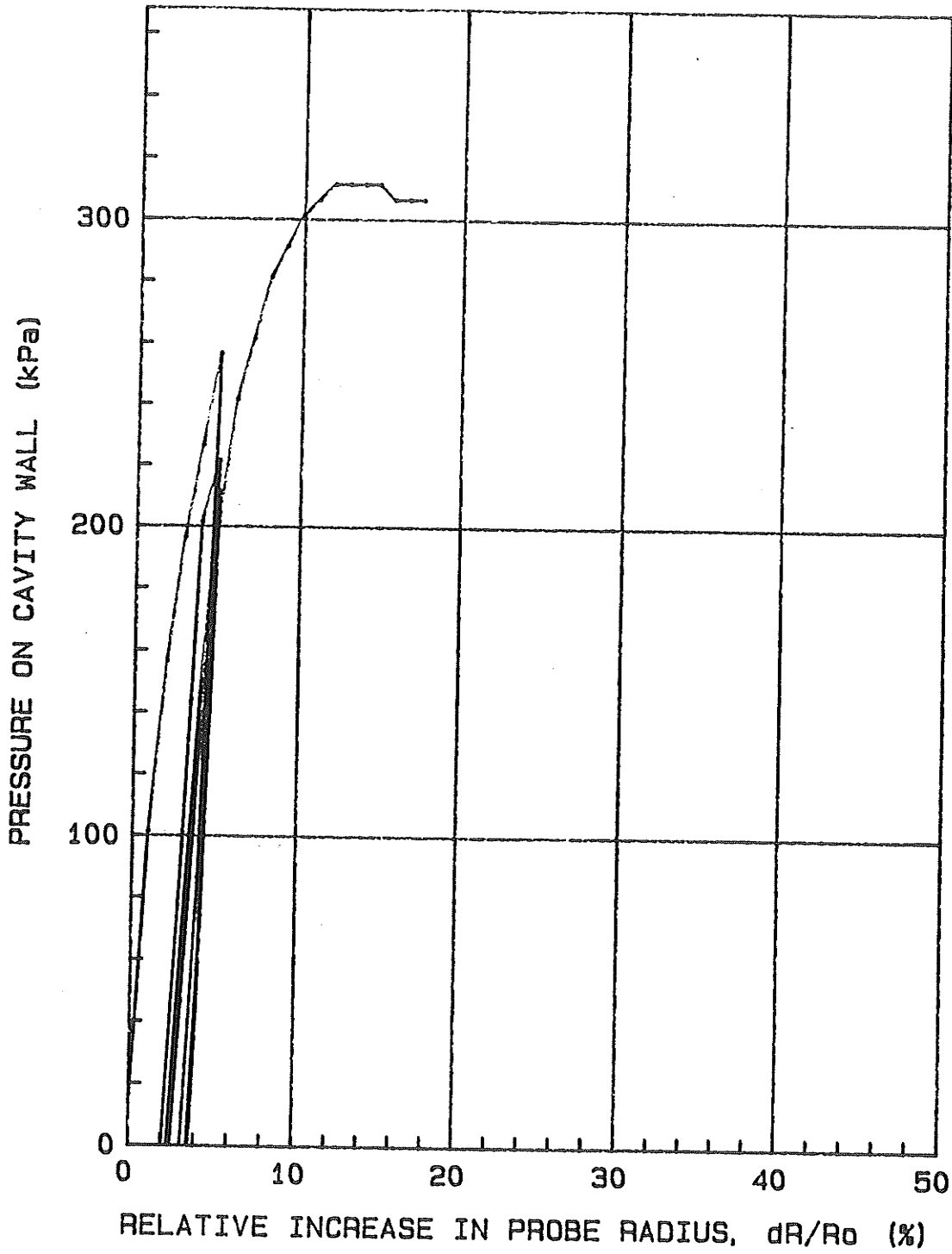
Eo/P1\* =



Regina R/W12--30: October/88: 7+190: 3mRt: Hole#13: 0.75m.

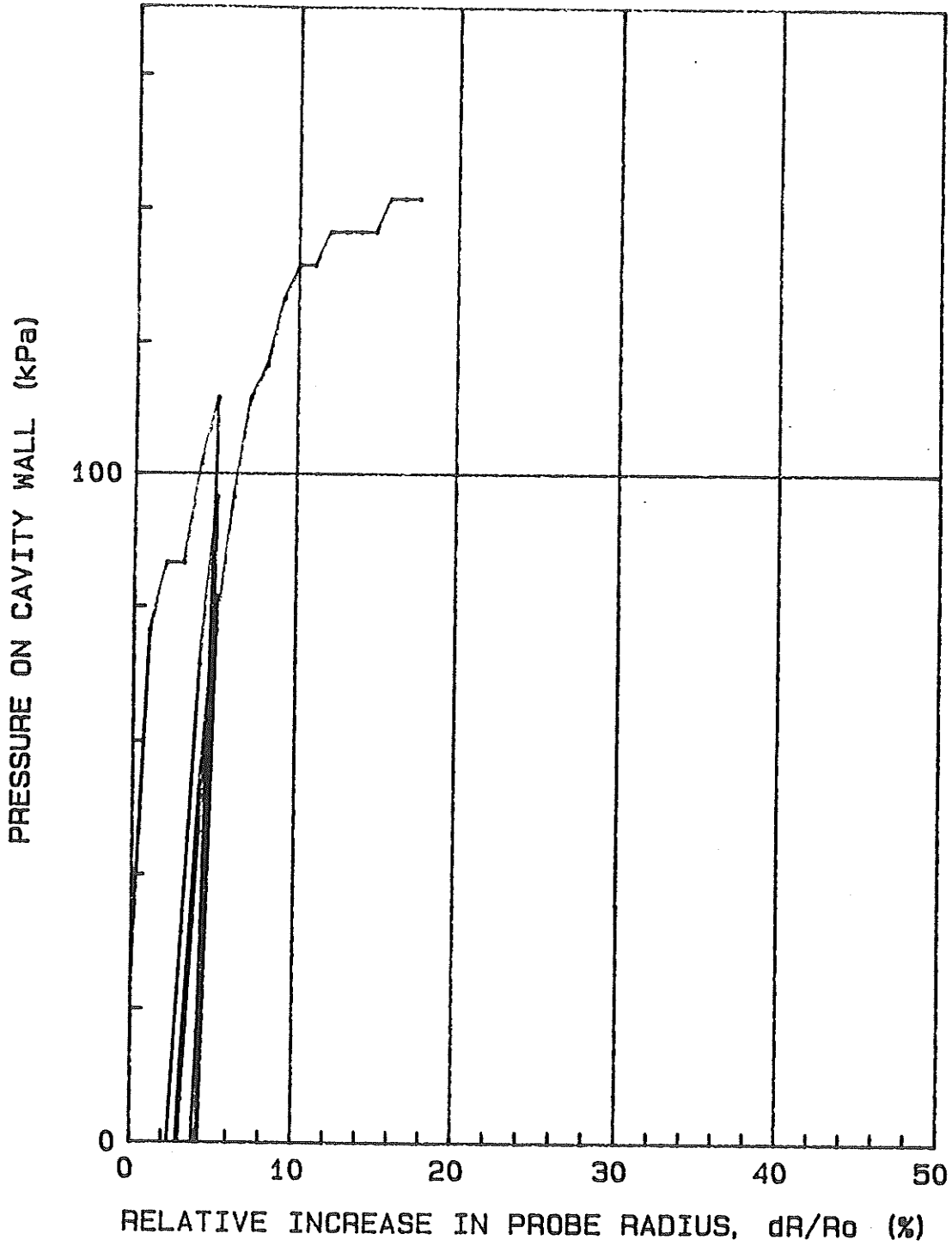
Po = 13 kPa  
P1 = 310 kPa  
P1\* = 297 kPa

Eo = 11446 kPa  
Er = 11053 kPa  
Eo/P1\* = 38.5



Regina R/W12-30: October/88: 7+190: 3mRt: Hole#13: 1.20m.

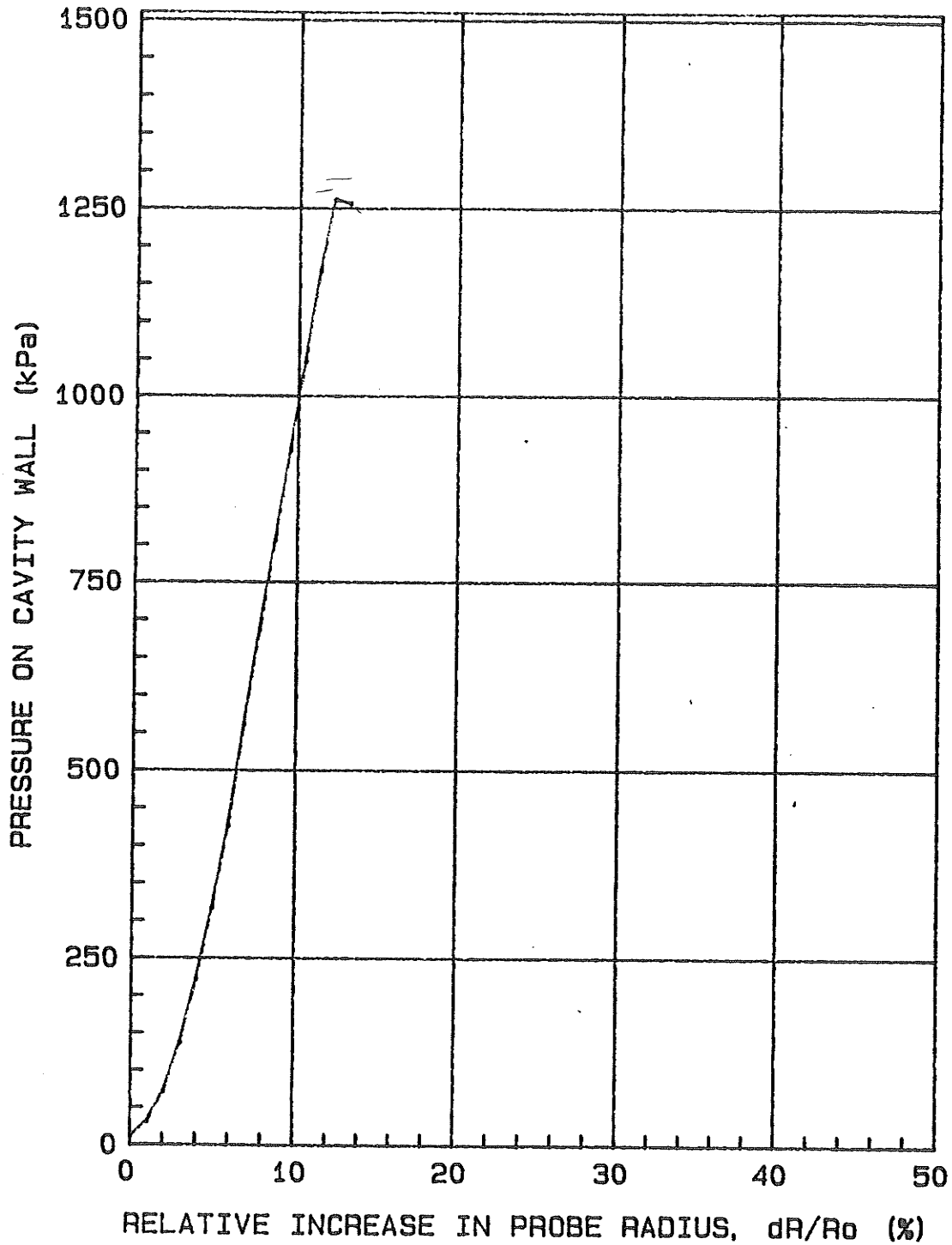
Po = 23.8 kPa      Eo = 6566 kPa  
P1 = 130 kPa      Er = 4849 kPa  
P1\* = 106.2 kPa    Eo/P1\* = 61.8



Regina R/W12-30: October/88: 7+190: 3mRt: Hole#13: 2.20m.



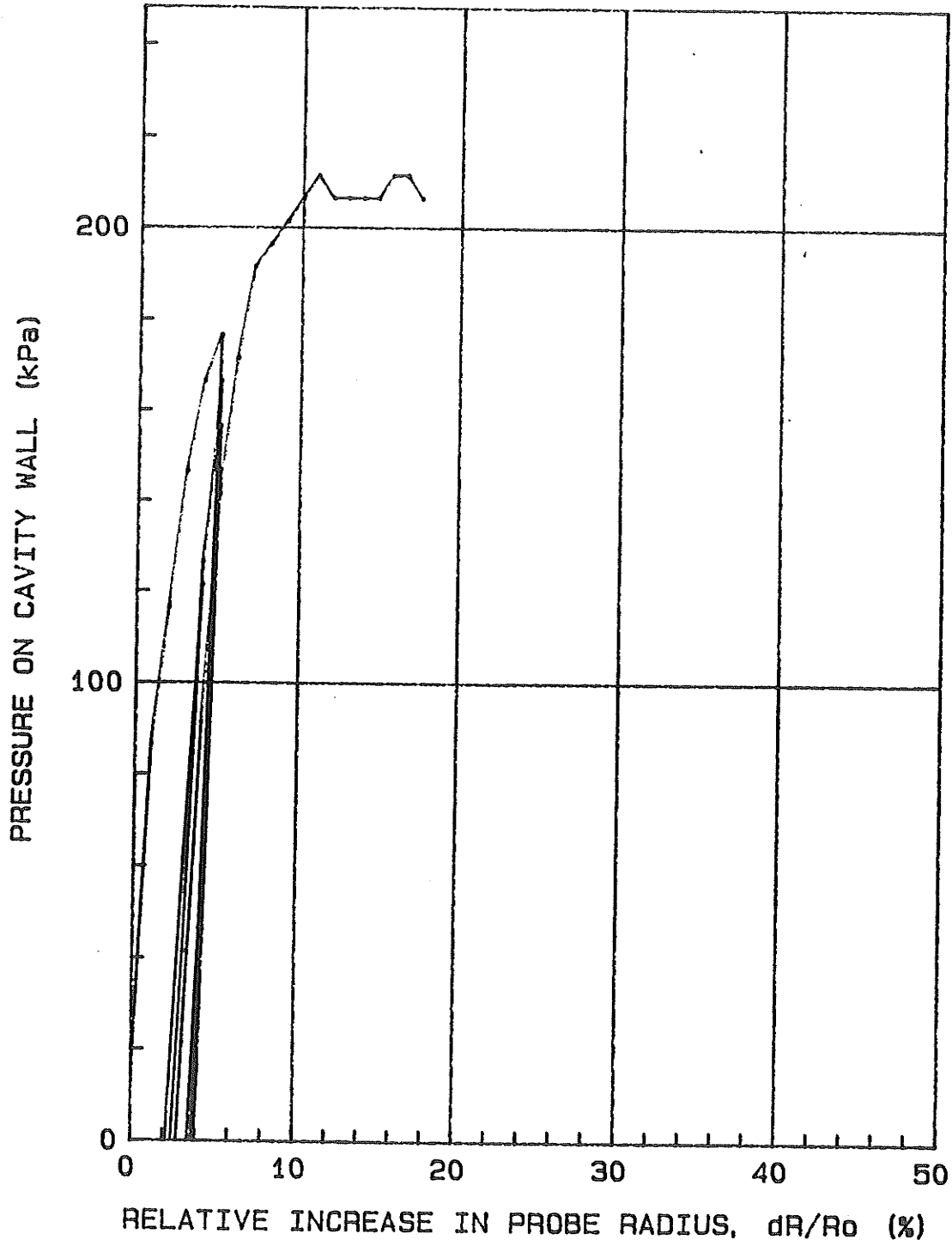
Po = 7.7 kPa      Eo = 18908 kPa  
P1 = 1275 kPa      Er =            kPa  
P1\* = 1267.3 kPa    Eo/P1\* = 14.9



Regina R/W12-30: October/88: 7+220: 3mLt: Hole#14: 0.73m.

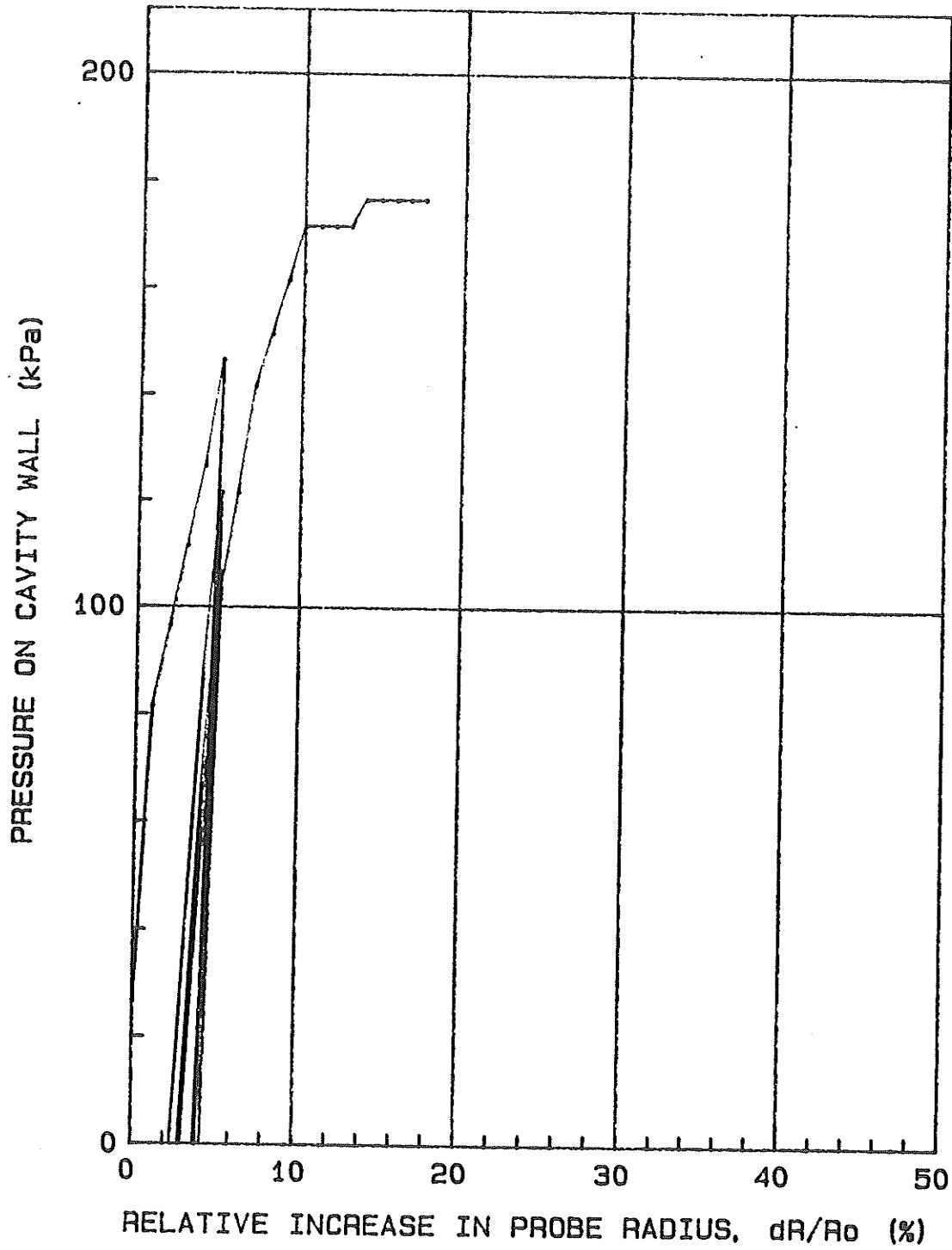
Po = 13 kPa  
P1 = 210 kPa  
P1\* = 197 kPa

Eo = 9324 kPa  
Er = 8455 kPa  
Eo/P1\* = 47.3



Regina R/W12-30: October/88: 7+220: 3mLt: Hole#14: 1.20m.

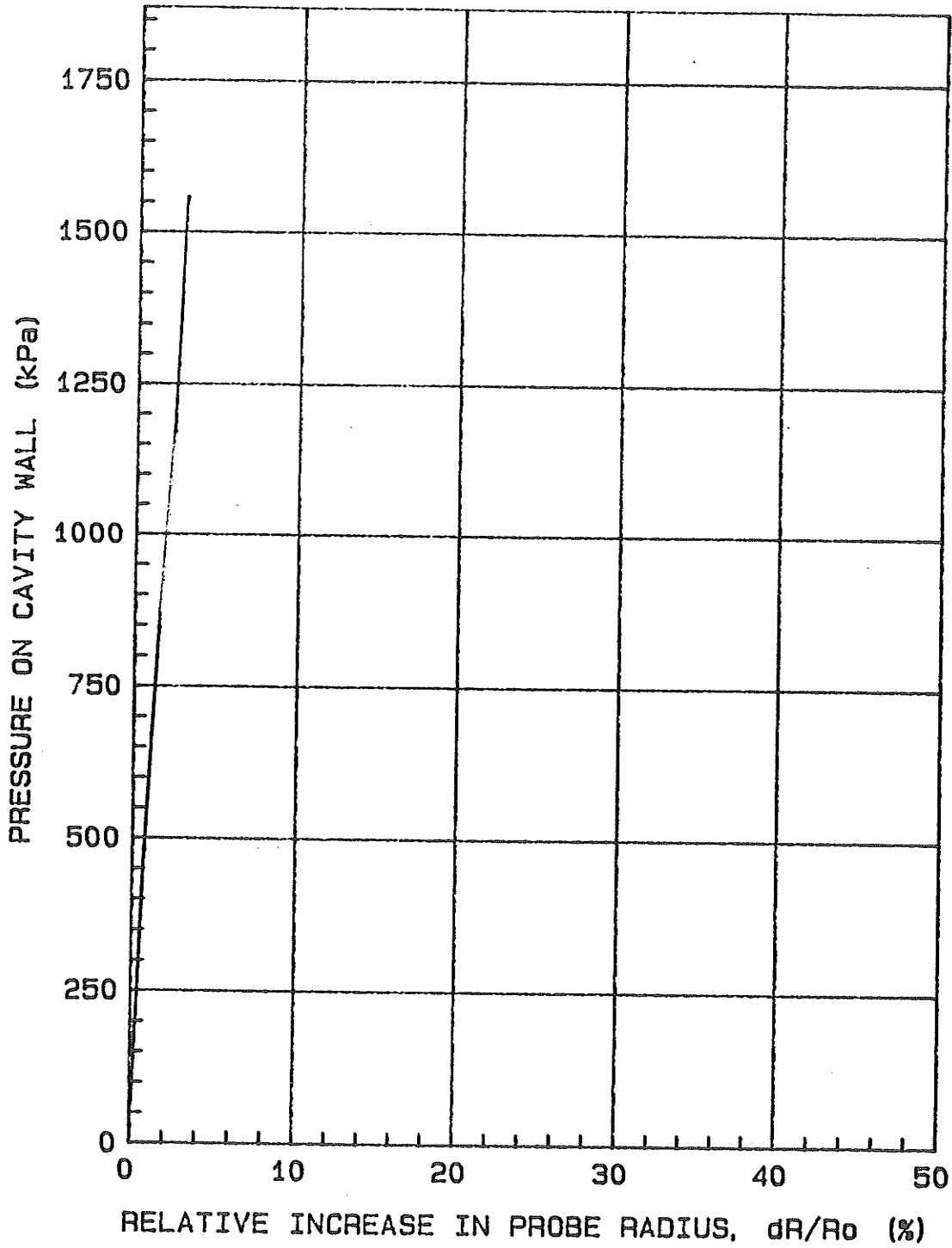
$P_0 = 23.8 \text{ kPa}$        $E_0 = 7248 \text{ kPa}$   
 $P_1 = 170 \text{ kPa}$        $E_r = 6638 \text{ kPa}$   
 $P_1^* = 146.2 \text{ kPa}$      $E_0/P_1^* = 49.5$



Regina R/W12-30: October/88: 7+220: 3mLt: Hole#14: 2.20m.

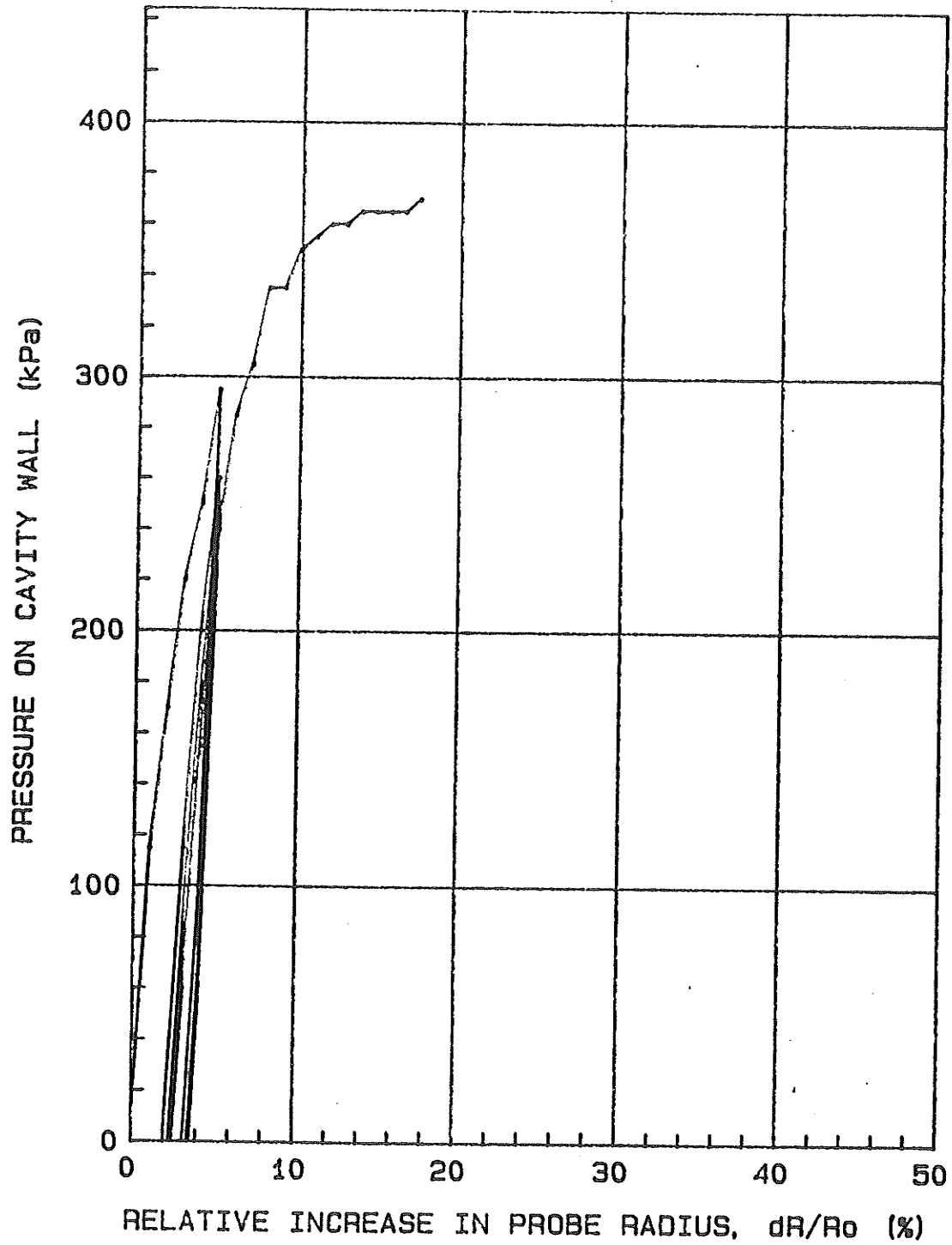
Po = 6.8 kPa  
P1 =           kPa  
P1\* =           kPa

Eo = 87814 kPa  
Er =           kPa  
Eo/P1\* =



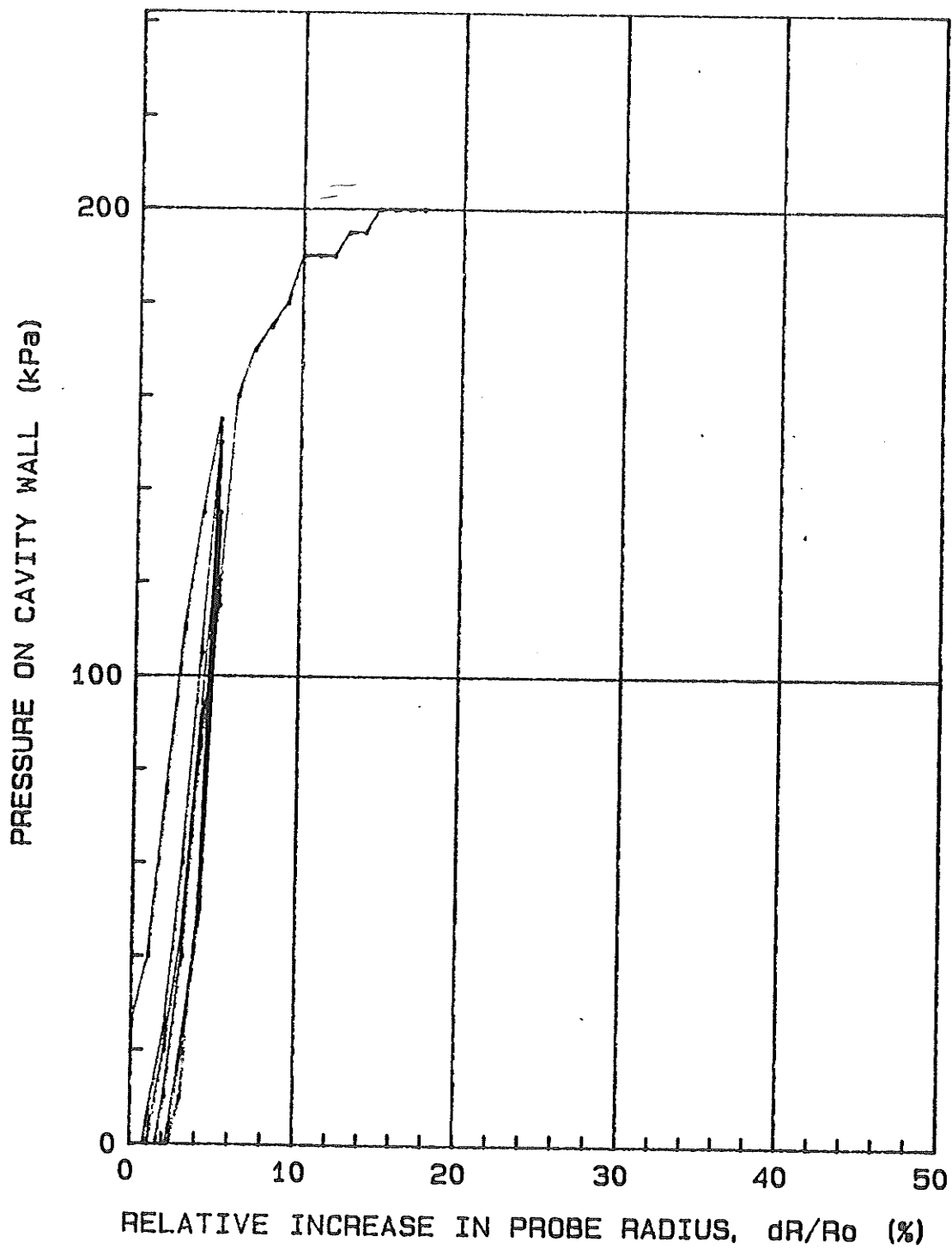
Regina R/W12-30: October/88: 7+310: 3mRt: Hole#15: 0.65m.

Po = 11.3 kPa      Eo = 13613 kPa  
P1 = 335 kPa      Er = 12948 kPa  
P1\* = 323.7 kPa    Eo/P1\* = 42



Regina R/W12-30: October/88: 7+310: 3mRt: Hole#15: 1.05m.

Po = 22.1 kPa      Eo = 4681 kPa  
P1 = 190 kPa      Er = 5611 kPa  
P1\* = 167.9 kPa    Eo/P1\* = 27.8



Regina R/W12-30: October/88: 7+310: 3mRt: Hole#15: 2.05m.

Po = 6.2 kPa

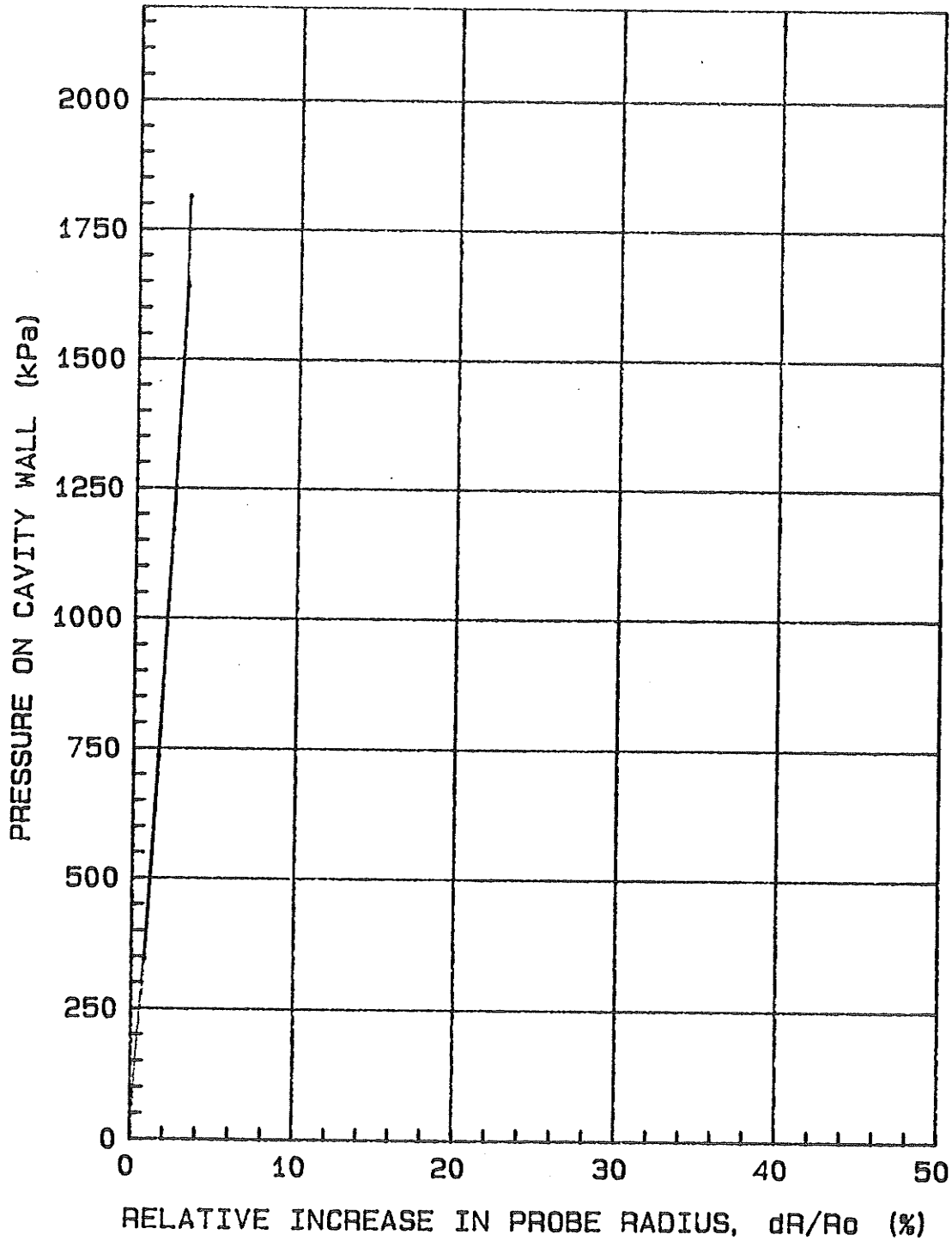
Eo = 79671 kPa

PI =        kPa

Er =        kPa

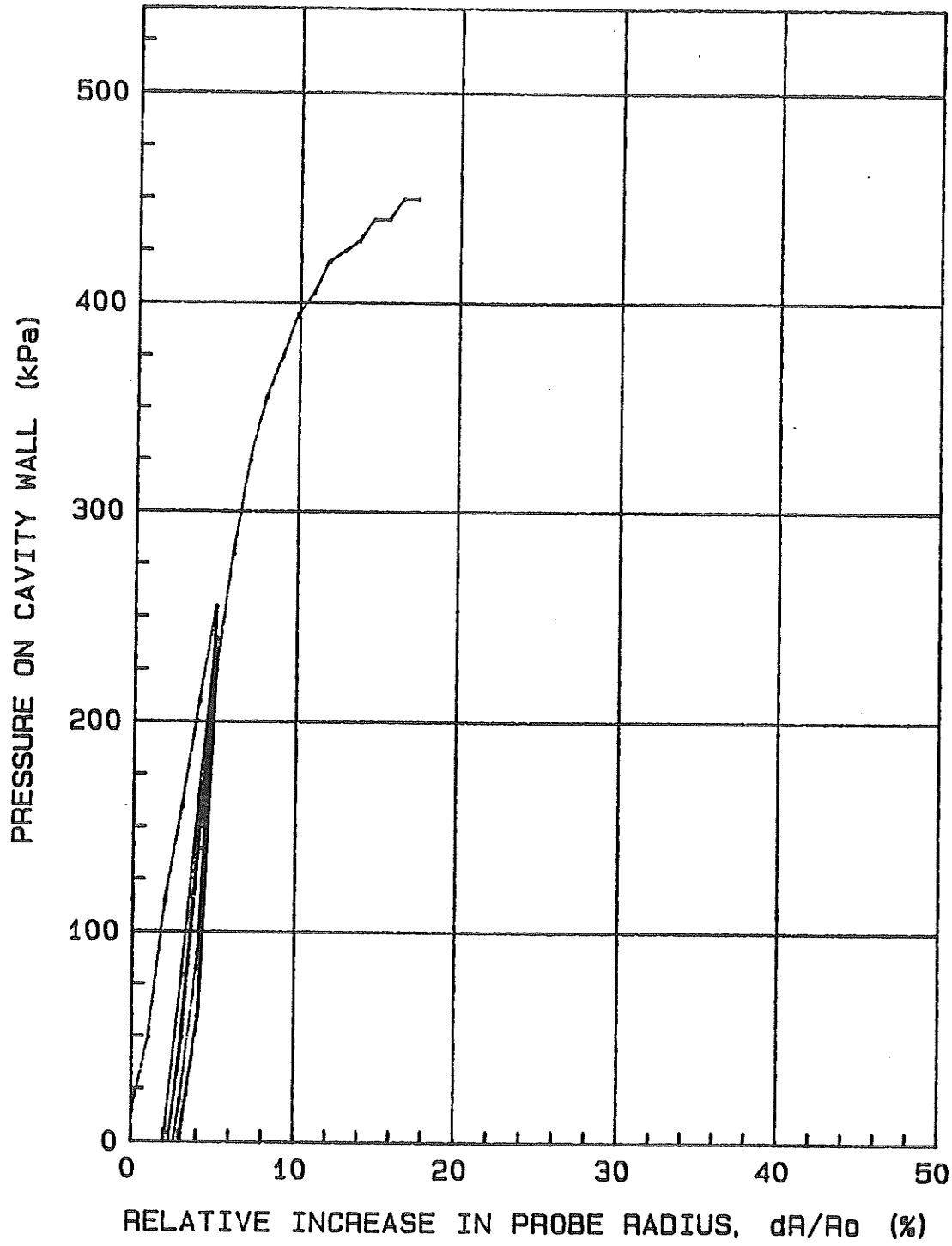
PI\* =        kPa

Eo/PI\* =



Regina R/W12-30: October/88: 7+370: 3mLt: Hole#16: 0.59m.

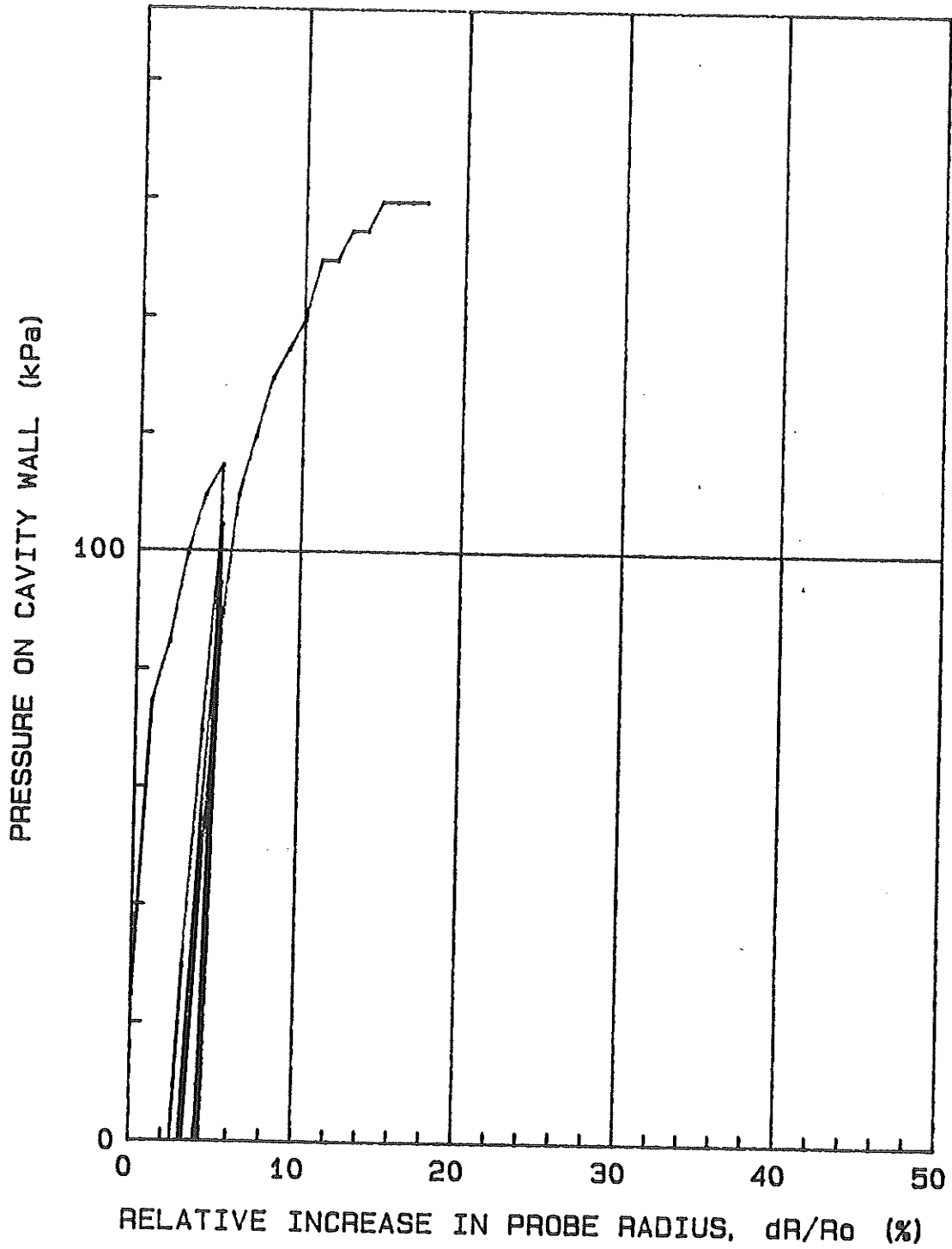
$P_0 = 10.8 \text{ kPa}$        $E_0 = 7048 \text{ kPa}$   
 $P_1 = 430 \text{ kPa}$        $E_r = 11084 \text{ kPa}$   
 $P_1^* = 419.2 \text{ kPa}$      $E_0/P_1^* = 16.8$



Regina R/W12-30: October/88: 7+370: 3mLt: Hole#16: 1.00m.

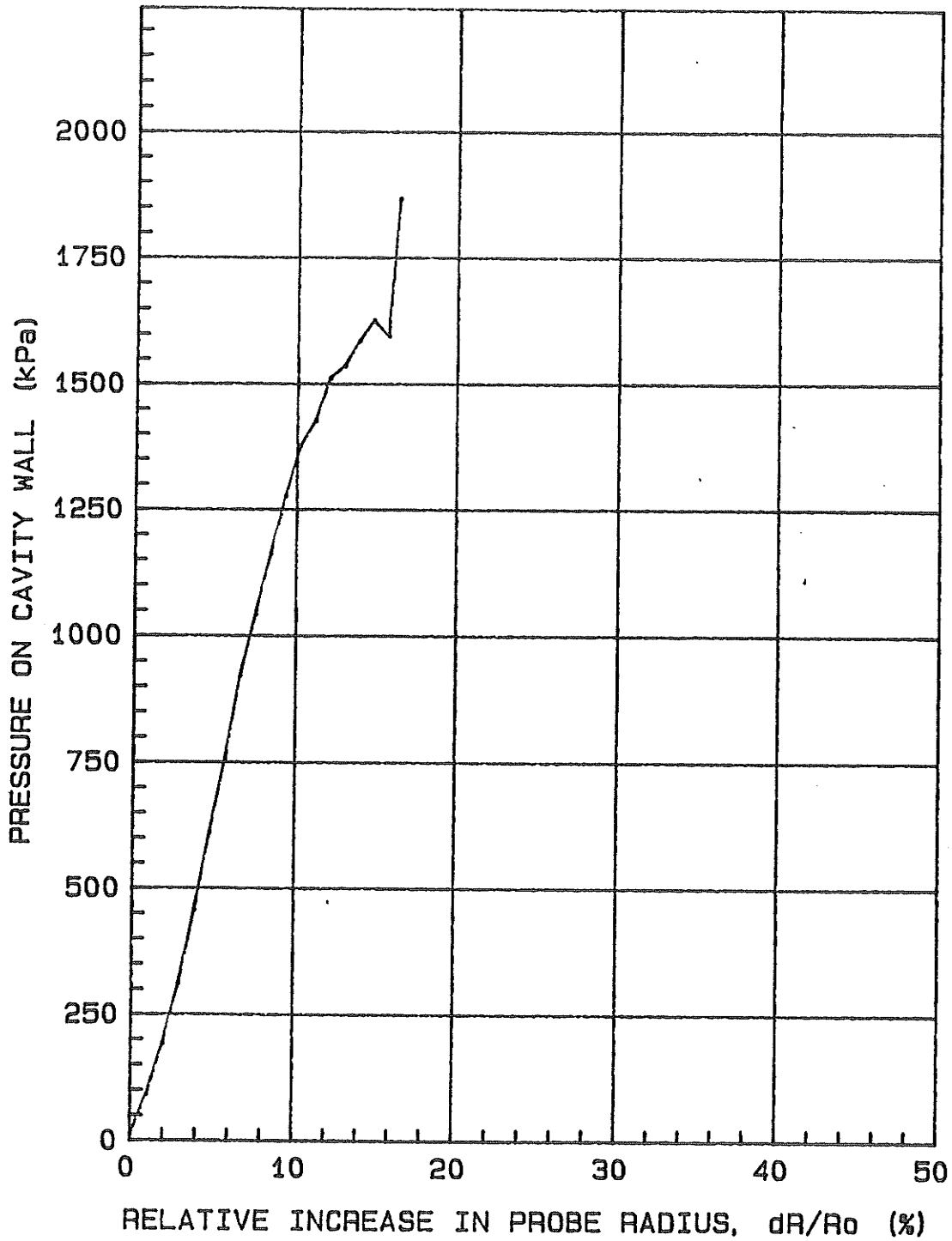


Po = 21.6 kPa      Eo = 6566 kPa  
P1 = 150 kPa      Er = 6278 kPa  
P1\* = 128.4 kPa    Eo/P1\* = 51.1



Regina R/W12-30: October/88: 7+370: 3mLt: Hole#16: 2.00m.

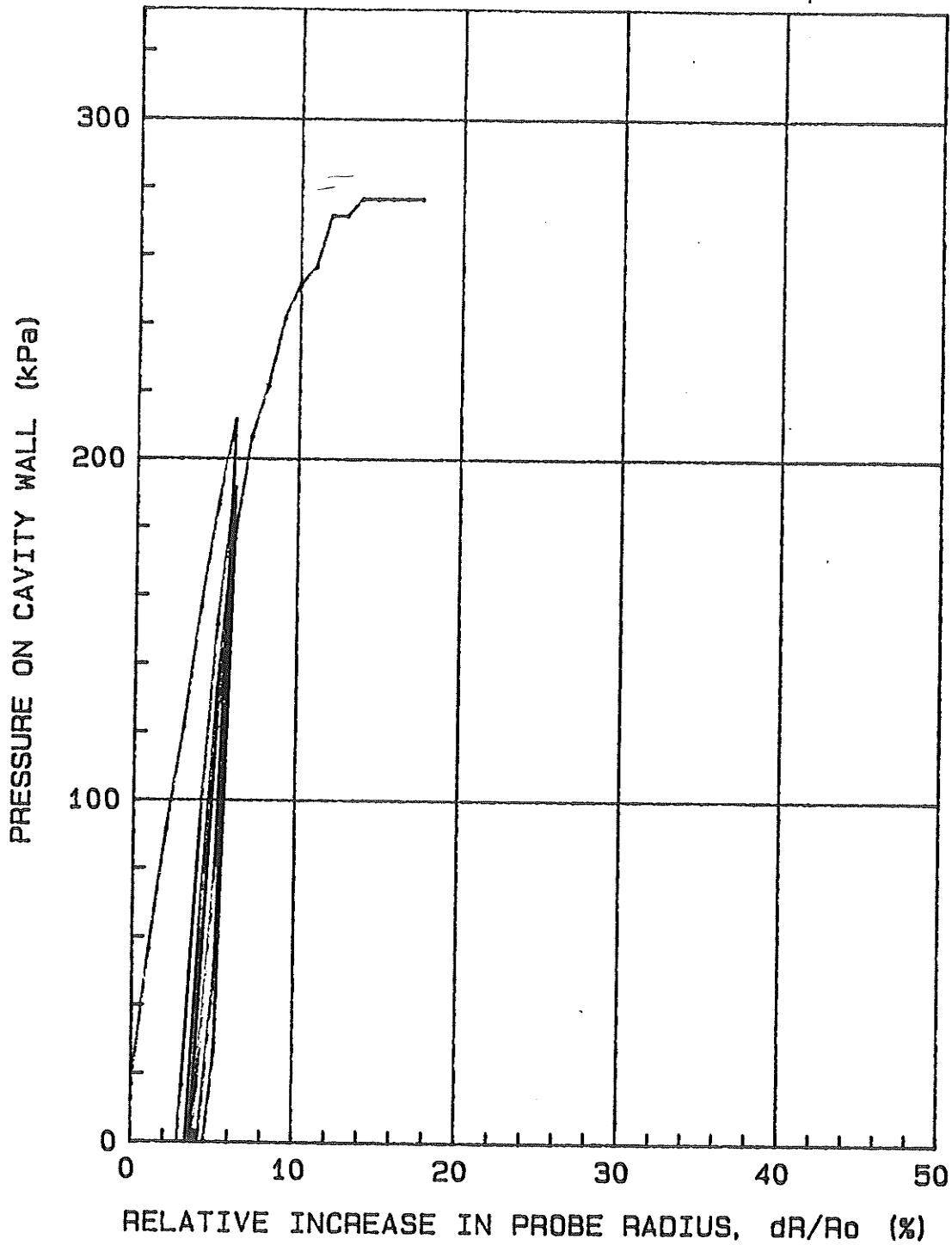
$P_0 = 7.3 \text{ kPa}$        $E_0 = 23293 \text{ kPa}$   
 $P_1 = 1625 \text{ kPa}$        $E_r = \text{                      kPa}$   
 $P_1^* = 1617.7 \text{ kPa}$      $E_0/P_1^* = 14.3$



Regina R/W12-30: October/88: 5+390: 3mLt: Hole#17: 0.70m.

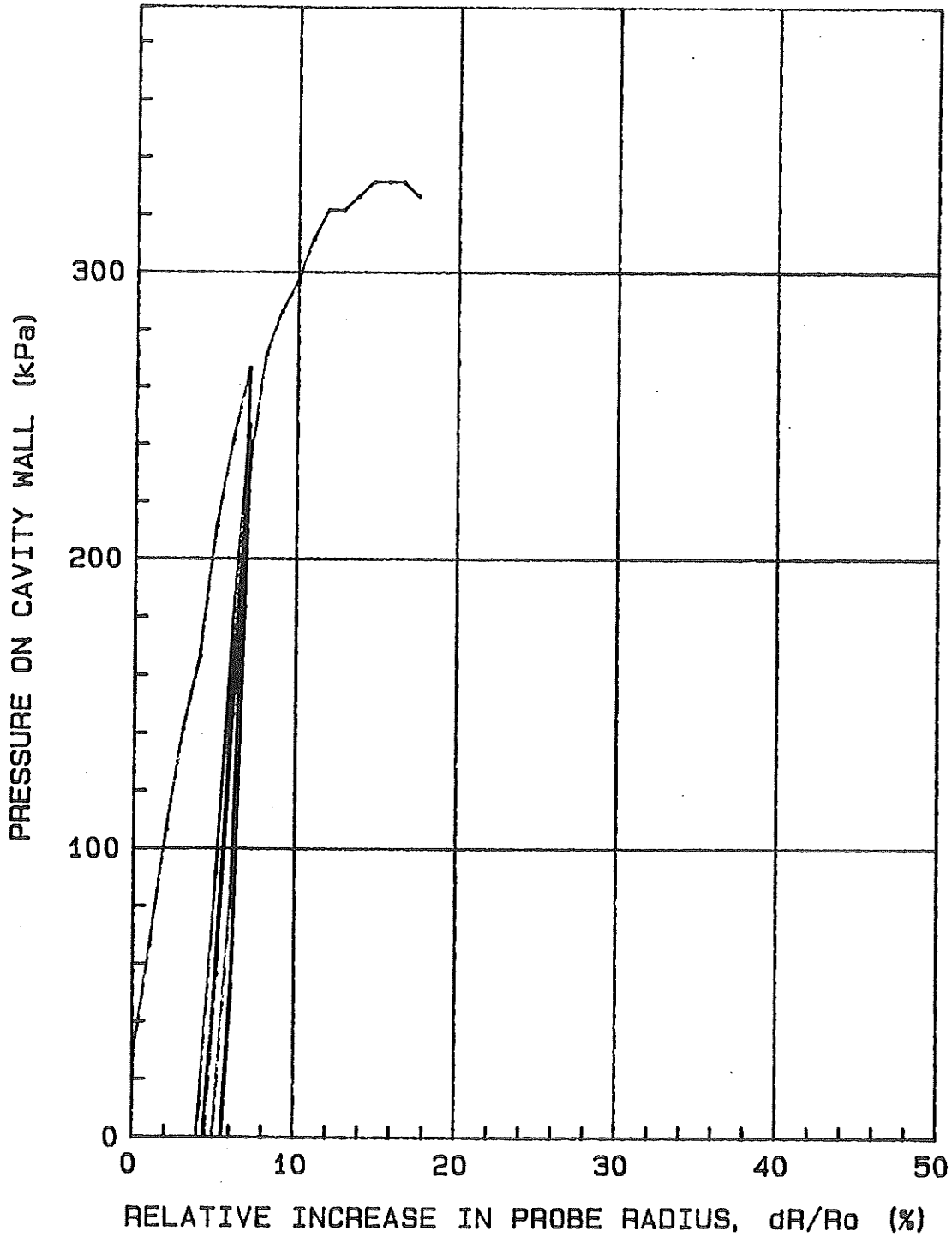
Po = 13 kPa  
P1 = 270 kPa  
P1\* = 257 kPa

Eo = 4931 kPa  
Er = 9748 kPa  
Eo/P1\* = 19.1



Regina R/W12-30: October/88: 5+390: 3mLt: Hole#17: 1.20m.

Po = 23.8 kPa      Eo = 5089 kPa  
P1 = 325 kPa      Er = 13063 kPa  
P1\* = 301.2 kPa    Eo/P1\* = 16.8



Regina R/W12-30: October/88: 5+390: 3mLt: Hole#17: 2.20m.

Po = 7 kPa

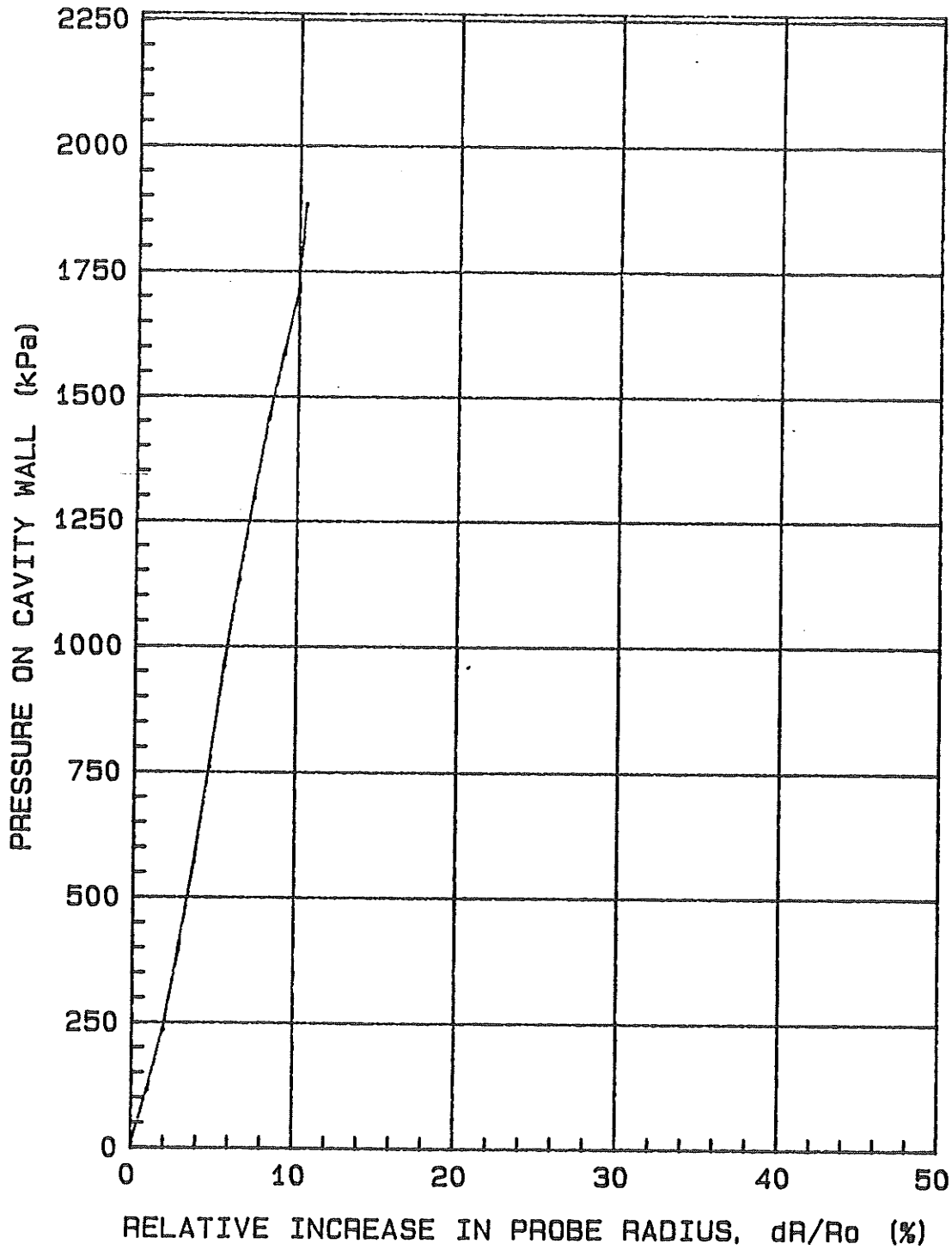
Eo = 27267 kPa

P1 = kPa

Er = kPa

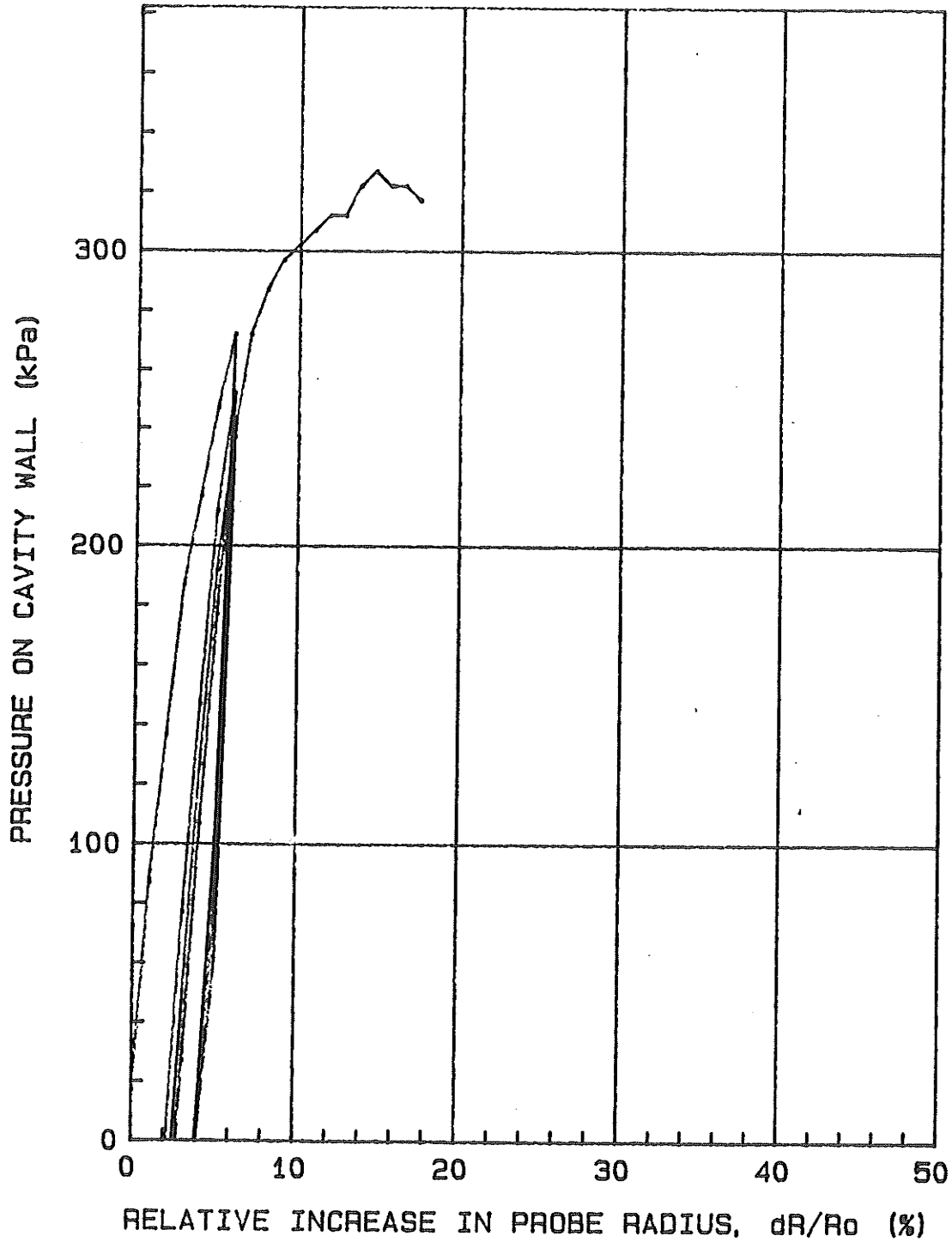
P1\* = kPa

Eo/P1\* =



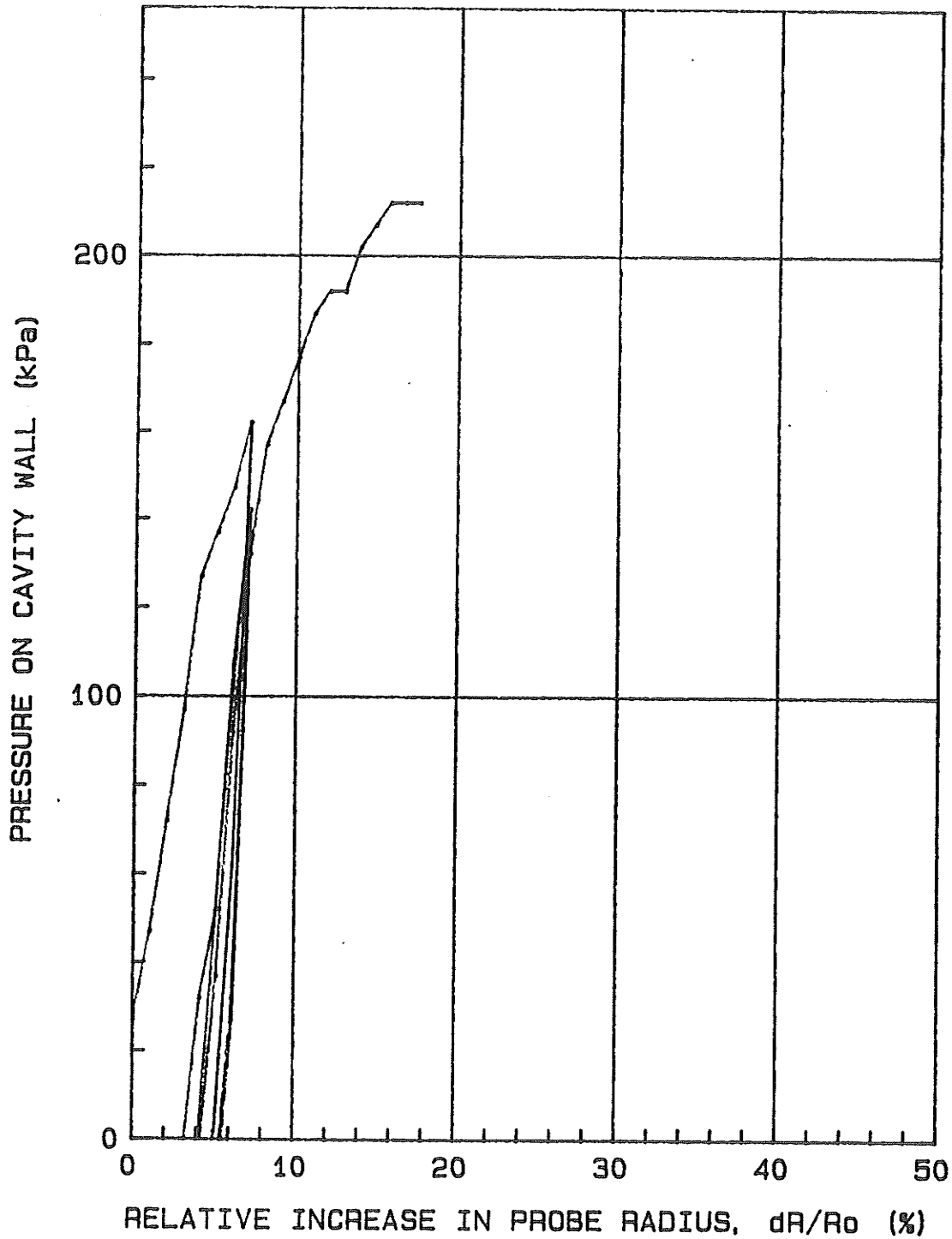
Regina R/W12-30: October/88: 5+570: 3mLt: Hole#18: 0.67m.

Po = 13.5 kPa      Eo = 9324 kPa  
P1 = 315 kPa      Er = 10026 kPa  
P1\* = 301.5 kPa    Eo/P1\* = 30.9



Regina R/W12-30: October/88: 5+570: 3mLt: Hole#18: 1.25m.

Po = 24.3 kPa      Eo = 3575 kPa  
P1 = 190 kPa      Er = 6462 kPa  
P1\* = 165.7 kPa    Eo/P1\* = 21.5



Regina R/W12-30: October/88: 5+570: 3mLt: Hole#18: 2.25m.

Po = 7.6 kPa

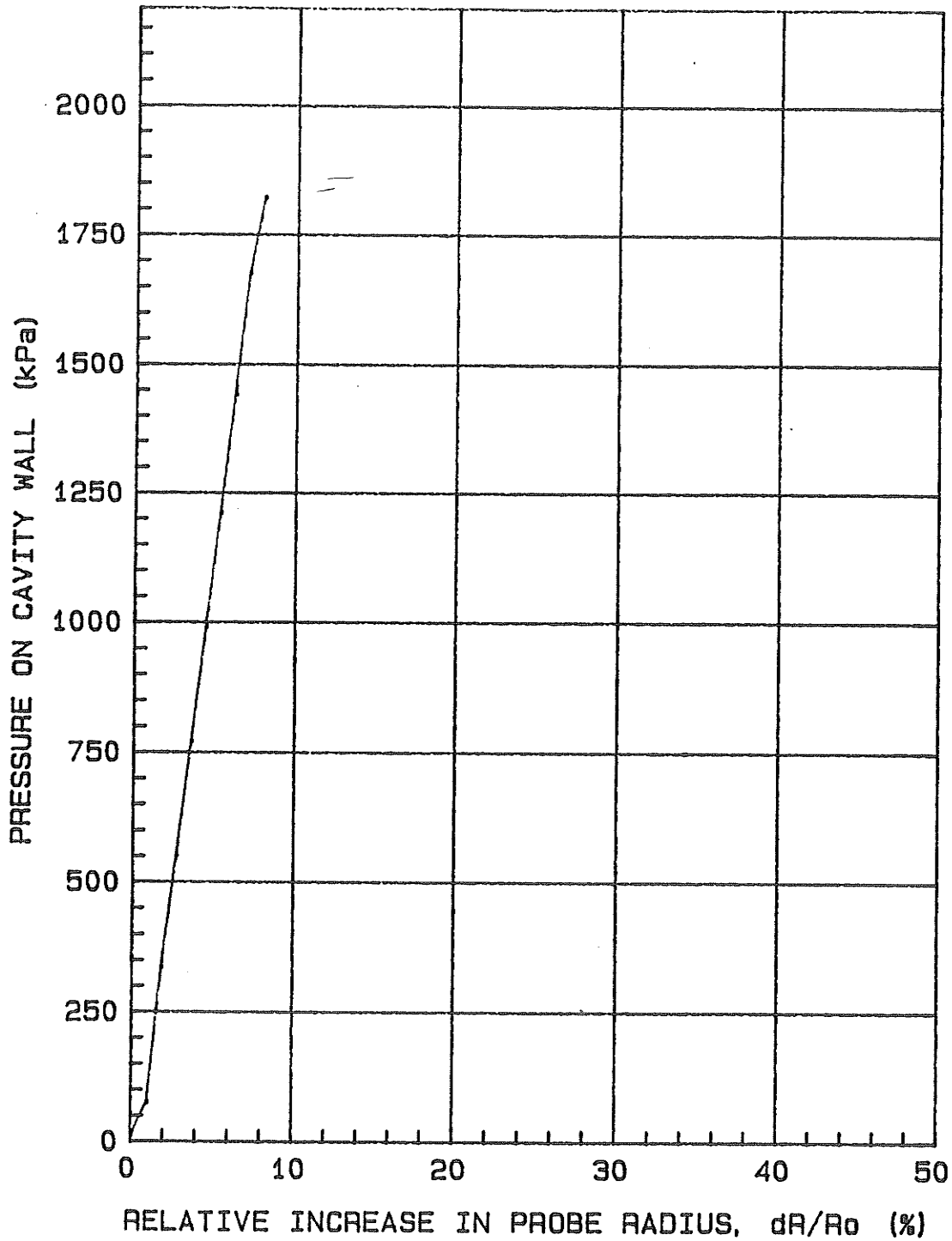
Eo = 36642 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =

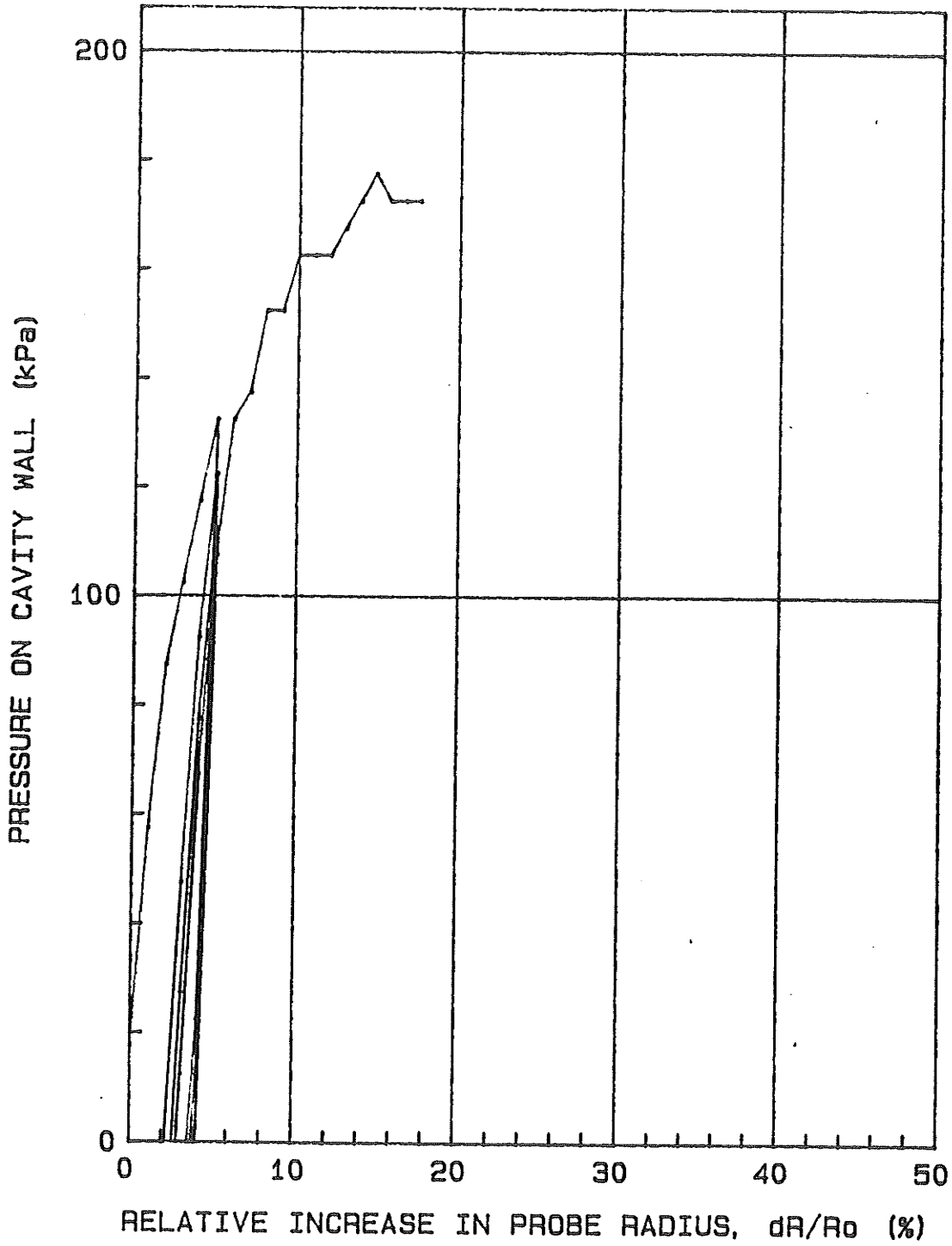


Regina R/W12-30: October/88: 6+890: 3mRt: Hole#19: 0.72m.



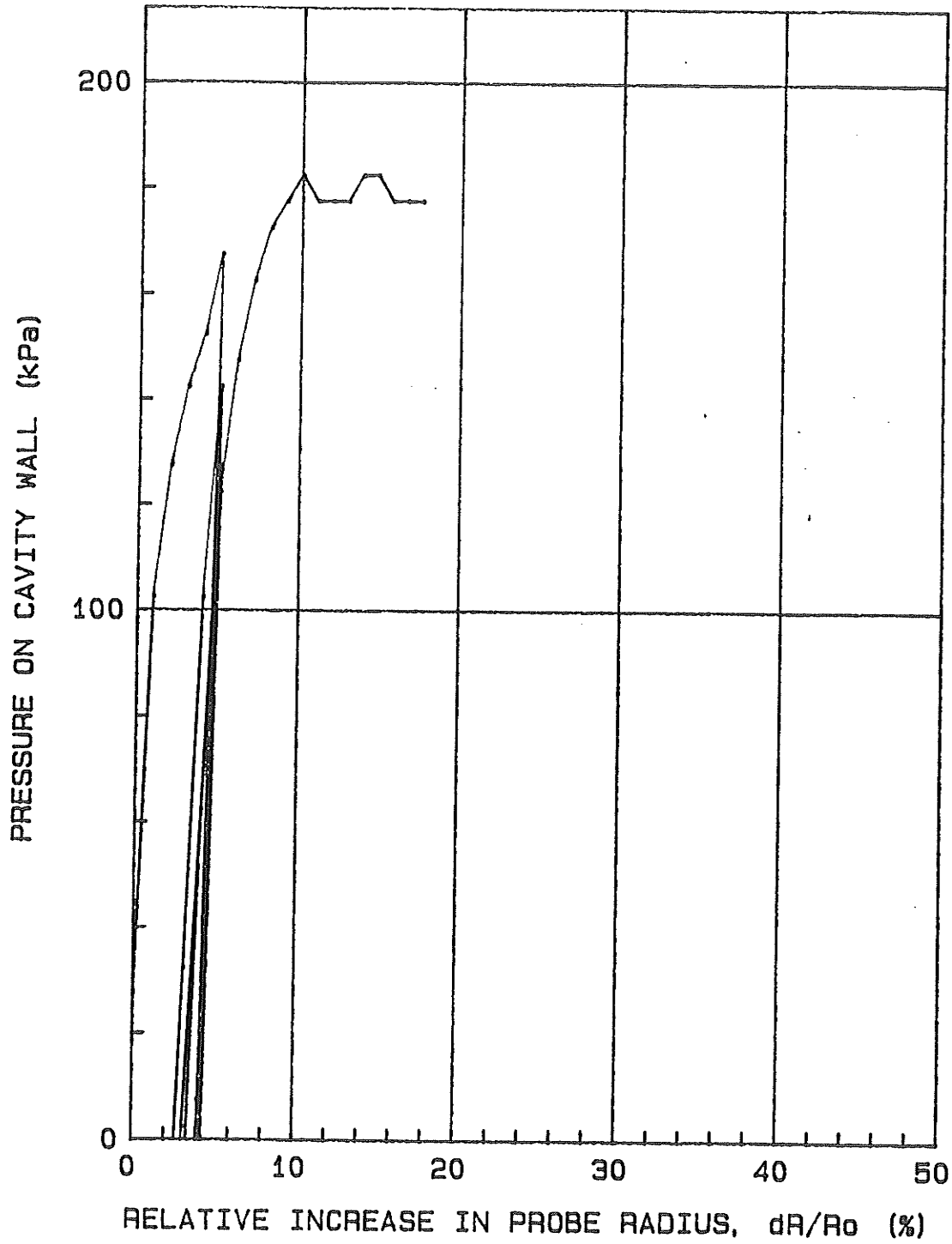
Po = 14 kPa  
P1 = 155 kPa  
P1\* = 141 kPa

Eo = 4595 kPa  
Er = 6637 kPa  
Eo/P1\* = 32.5



Regina R/W12-30: October/88: 6+890: 3mRt: Hole#19: 1.30m.

Po = 24.8 kPa      Eo = 10026 kPa  
P1 = 180 kPa      Er = 8538 kPa  
P1\* = 155.2 kPa    Eo/P1\* = 64.6



Regina R/W12-30: October/88: 6+890: 3mRt: Hole#19: 2.30m.

Po = 6.3 kPa

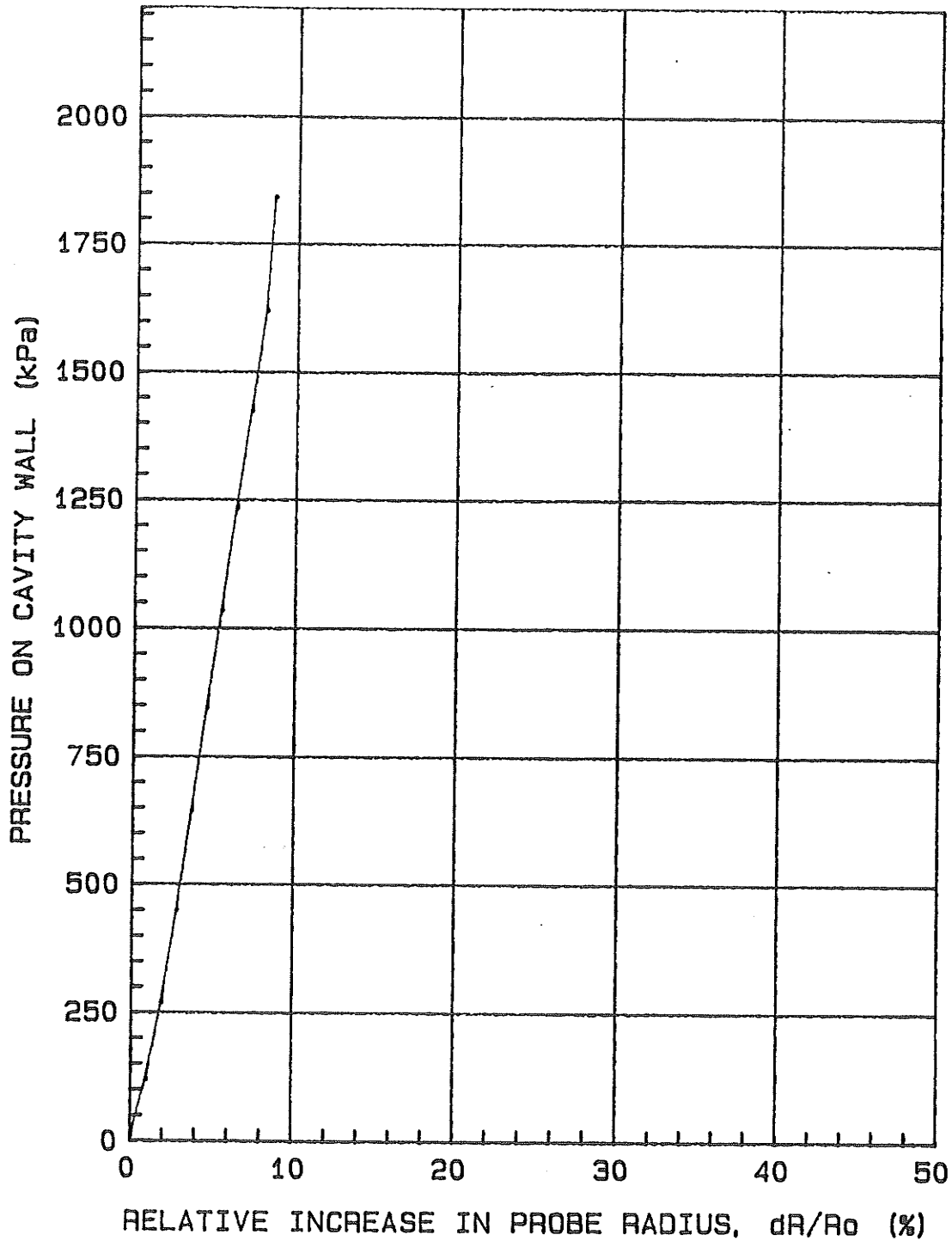
Eo = 30573 kPa

P1 =        kPa

Er =        kPa

P1\* =       kPa

Eo/P1\* =



Regina R/W12-30: October/88: 5+024: 3mRt: Hole#23: 0.60m.

Po = 6.3 kPa

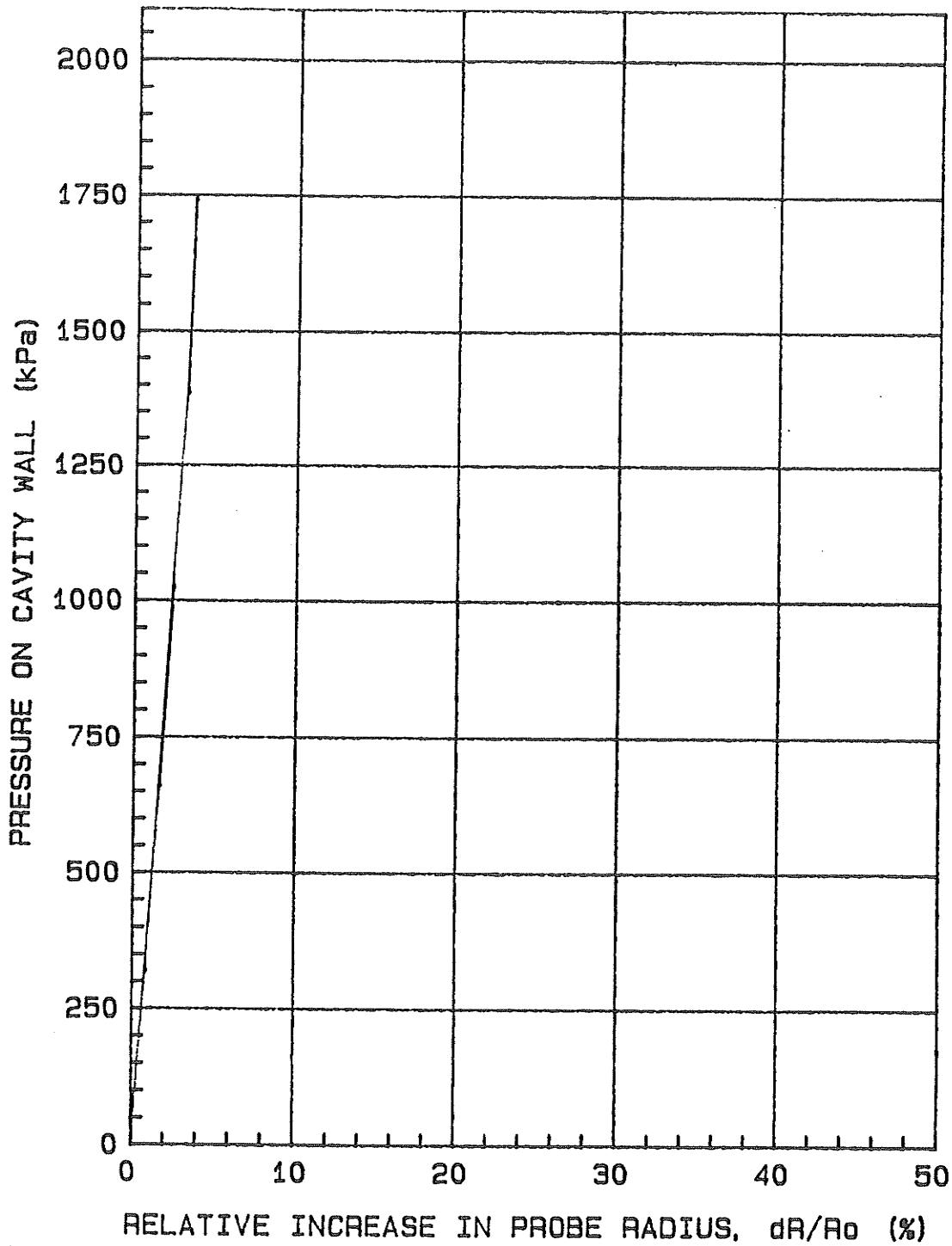
Eo = 61090 kPa

P1 =        kPa

Er =        kPa

P1\* =        kPa

Eo/P1\* =



Regina R/W12-30: October/88: 5+024: 3mLt: Hole#24: 0.60m.

Po = 6.3 kPa

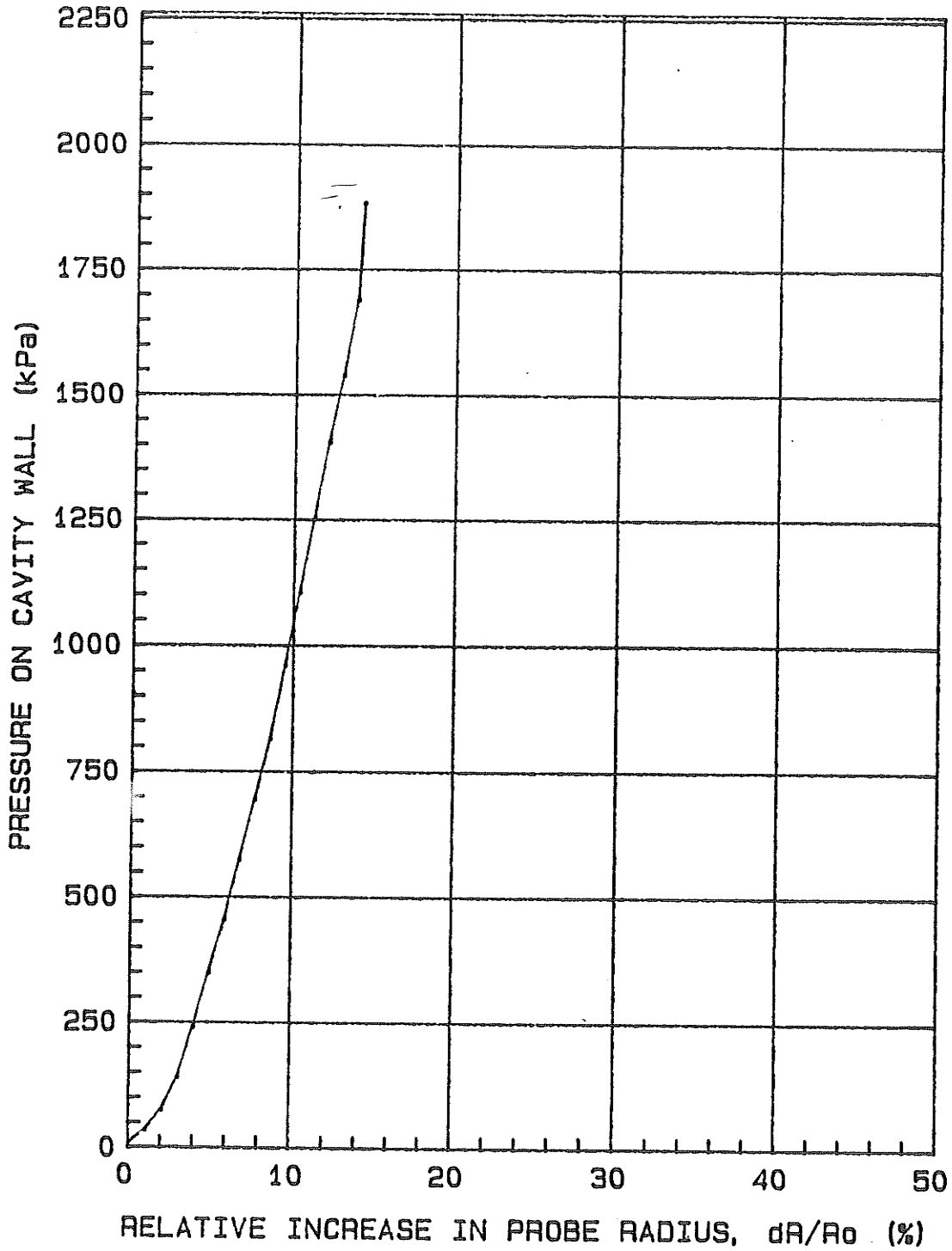
Eo = 24990 kPa

P1 =        kPa

Er =        kPa

P1\* =       kPa

Eo/P1\* =



Regina R/W12-30: October/88: 5+061: 3mRt: Hole#25: 0.60m.

Po = 6.3 kPa

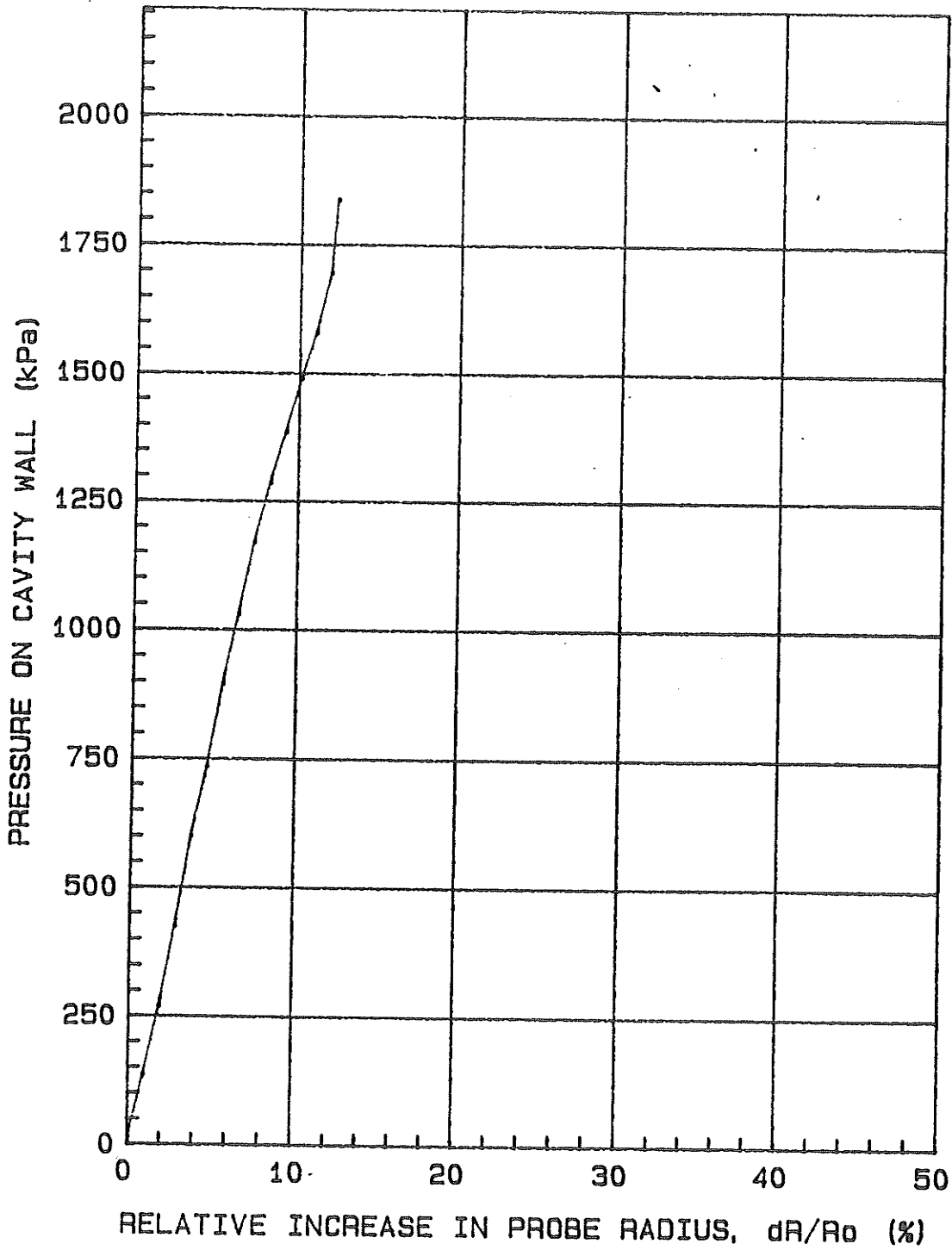
Eo = 21655 kPa

P1 =        kPa

Er =        kPa

P1\* =        kPa

Eo/P1\* =



Regina R/W12-30: October/88: 5+097: 9mLt: Hole#27: 0.60m.

Po = 5.3 kPa

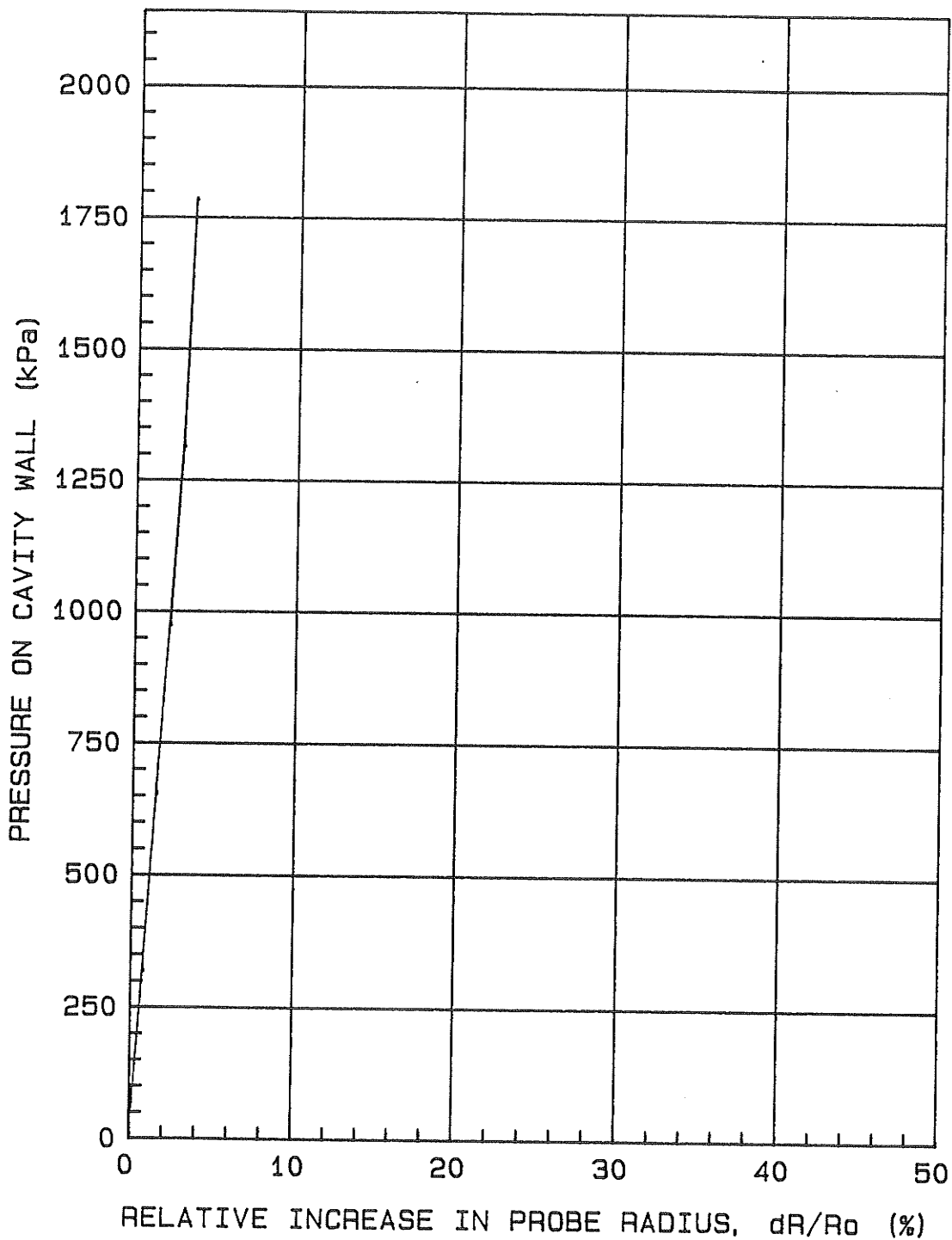
Eo = 61208 kPa

P1 = kPa

Er = kPa

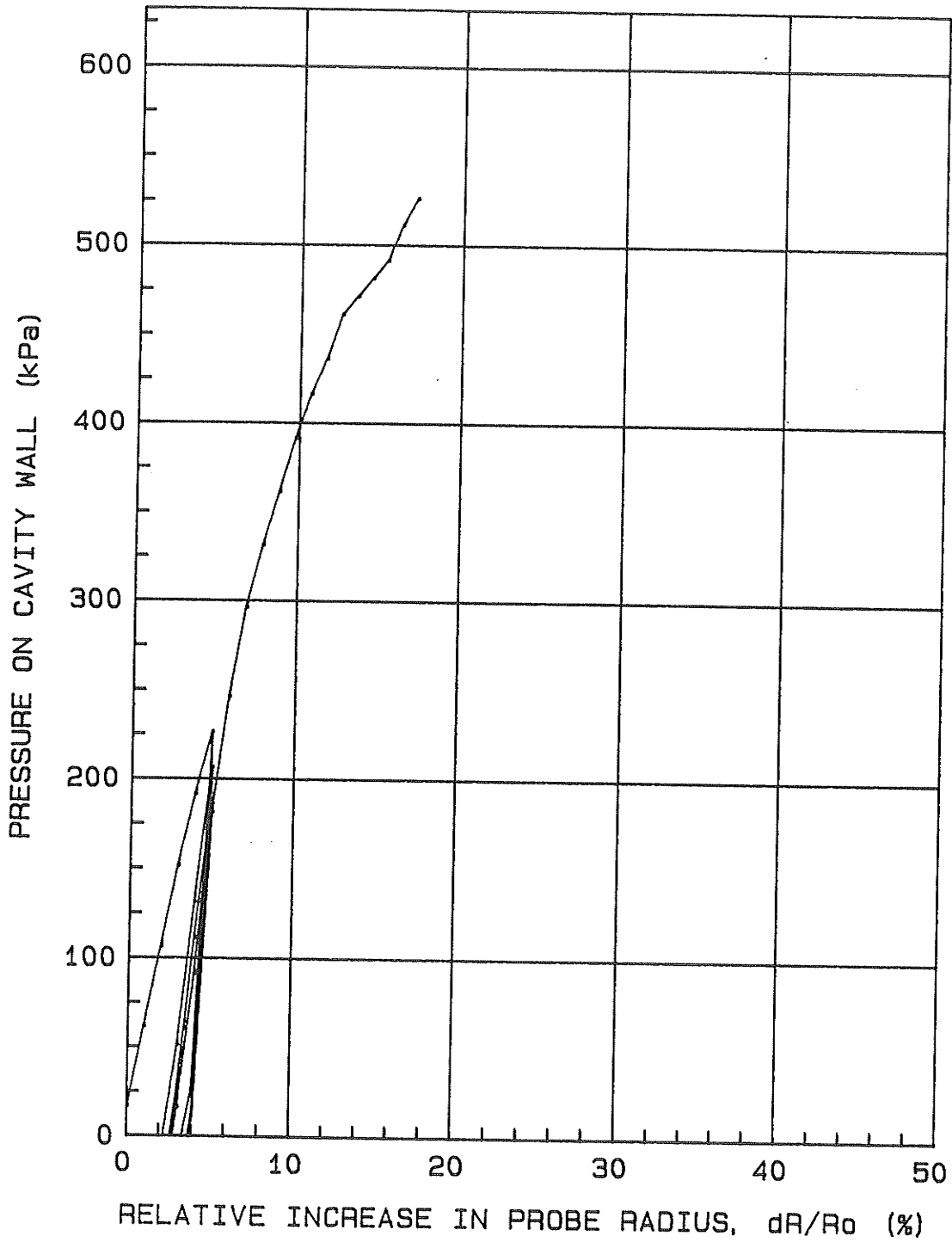
P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33; Oct/88: 5+100: 3mRt: Hole#1: 0.50m.

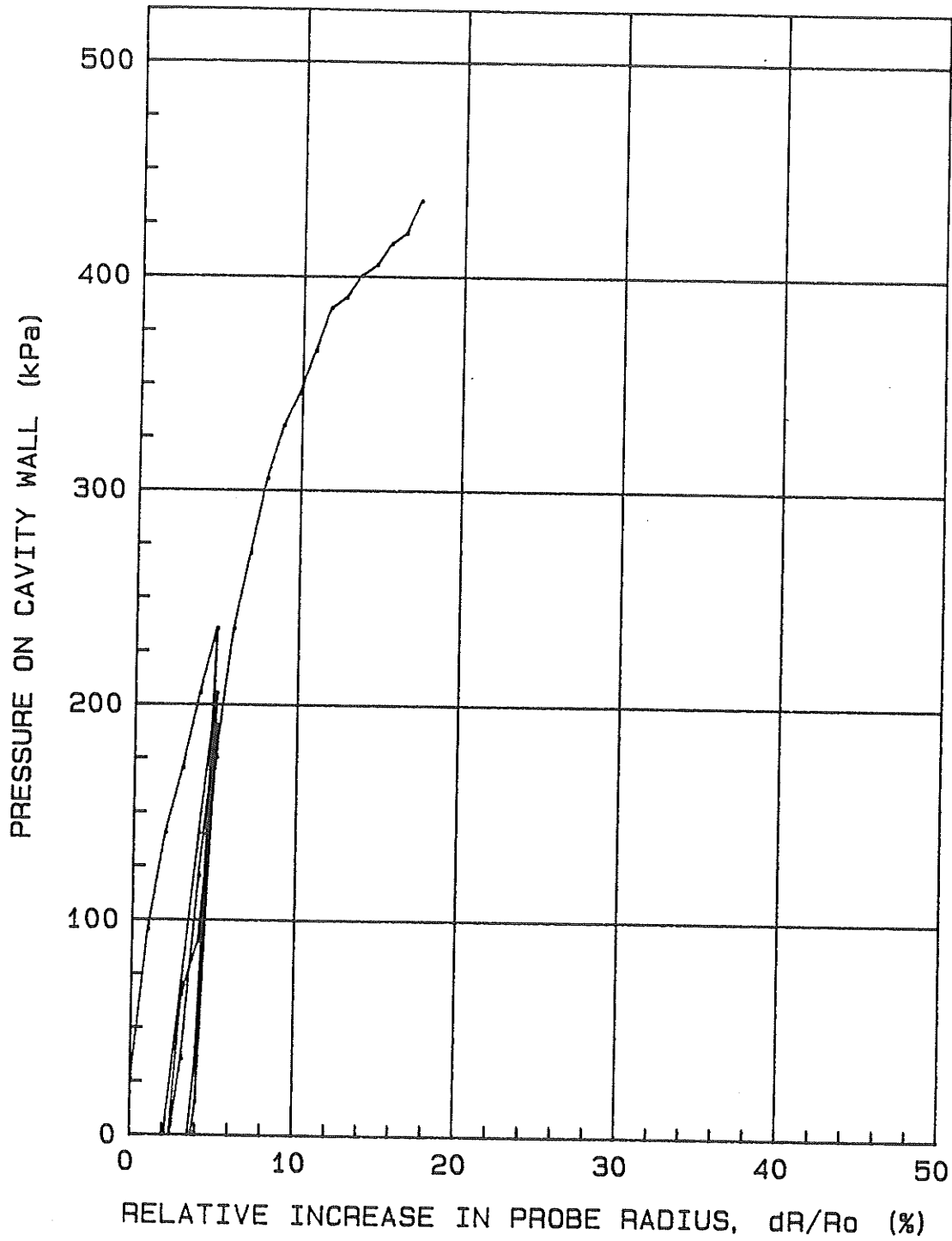
Po = 12.5 kPa      Eo = 5767 kPa  
P1 = 600 kPa      Er = 11281 kPa  
P1\* = 587.5 kPa    Eo/P1\* = 9.8



Saskatoon R/W15-33: Oct/88: 5+100: 3mRt: Hole#1: 1.20m.



Po = 21.9 kPa      Eo = 9548 kPa  
P1 = 420 kPa      Er = 9508 kPa  
P1\* = 398.1 kPa    Eo/P1\* = 23.9



Saskatoon R/W15-33: Oct/88: 5+100: 3mRt: Hole#1: 2.10m.

Po = 5.3 kPa

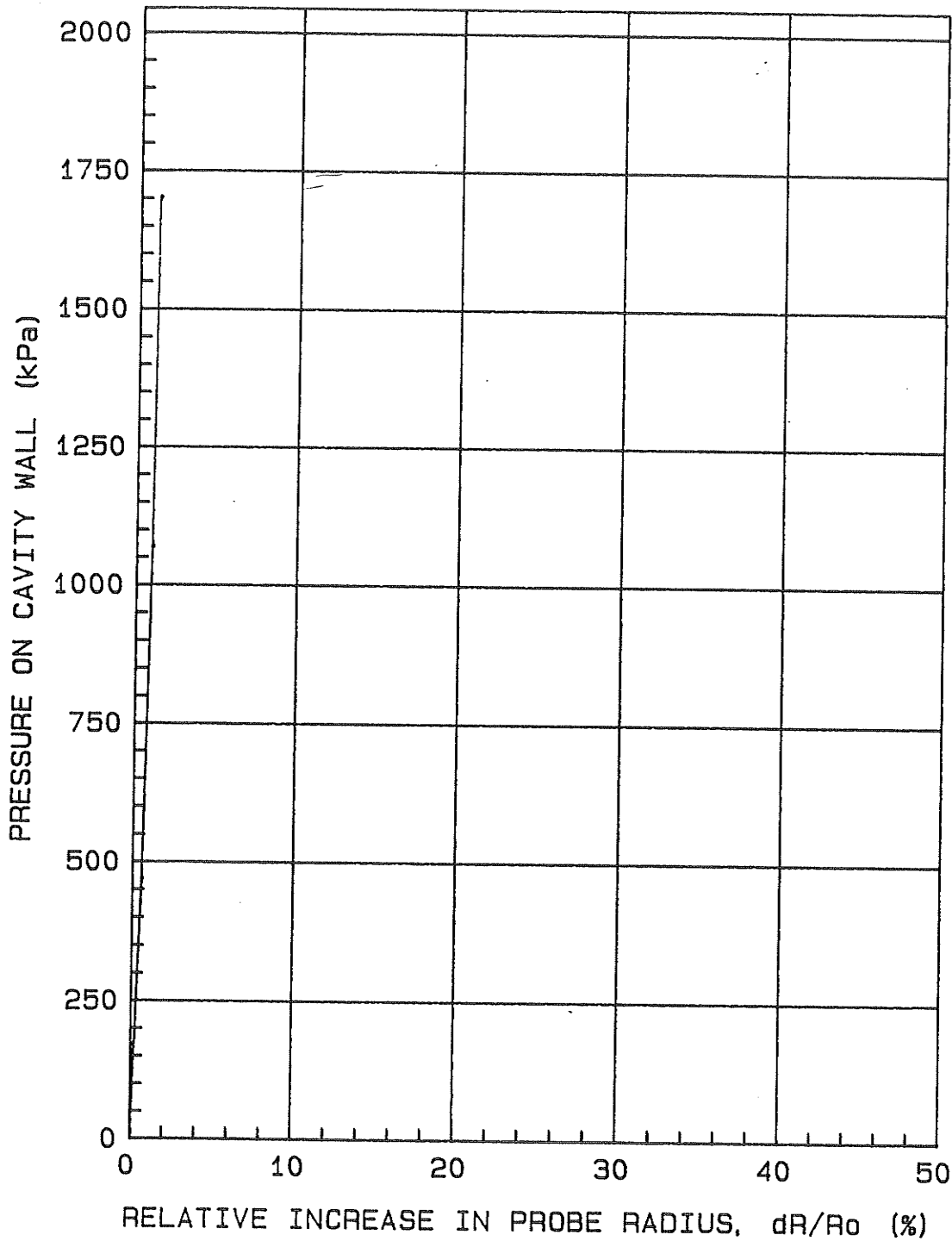
Eo = 180475 kPa

P1 = kPa

Er = kPa

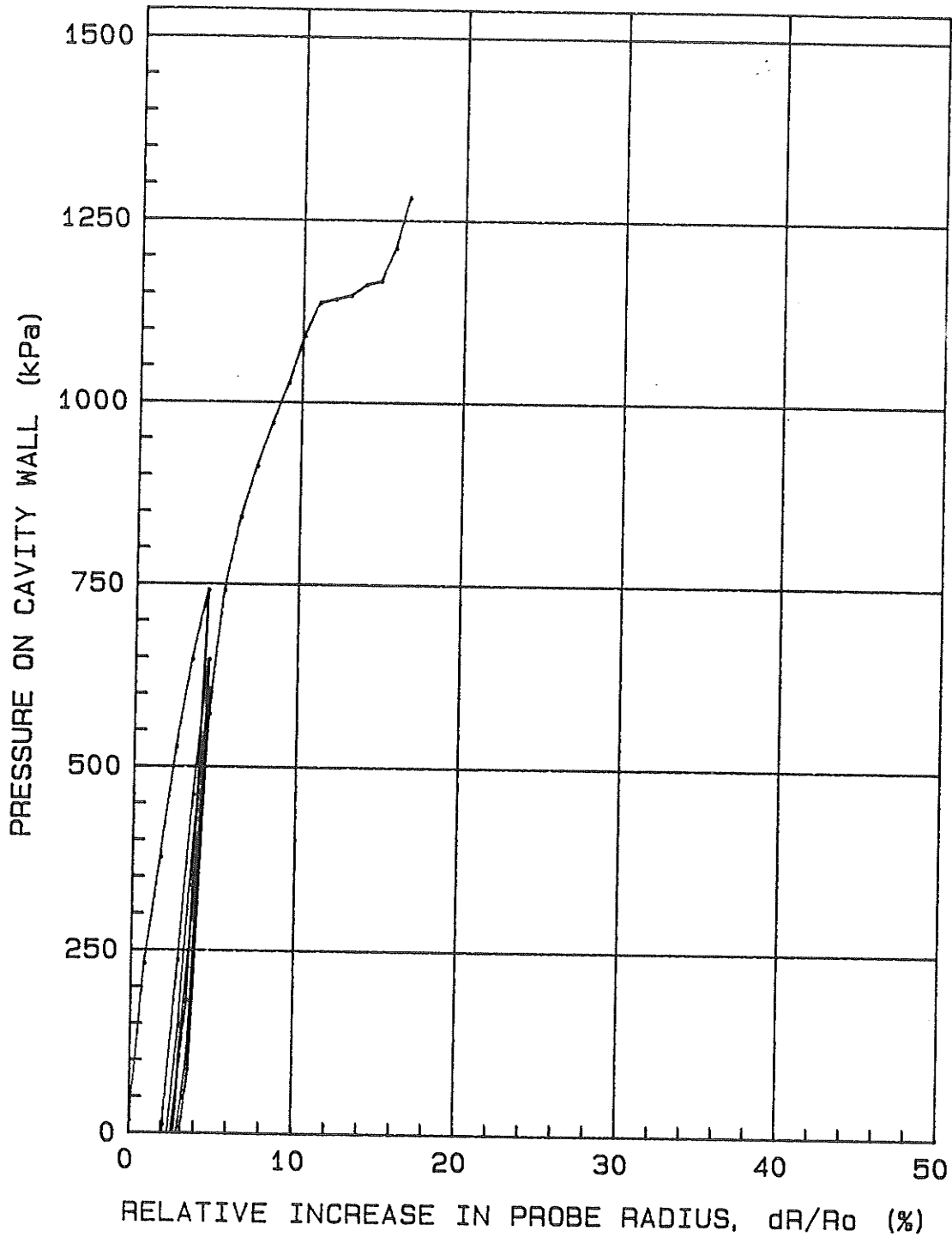
P1\* = kPa

Eo/P1\* =



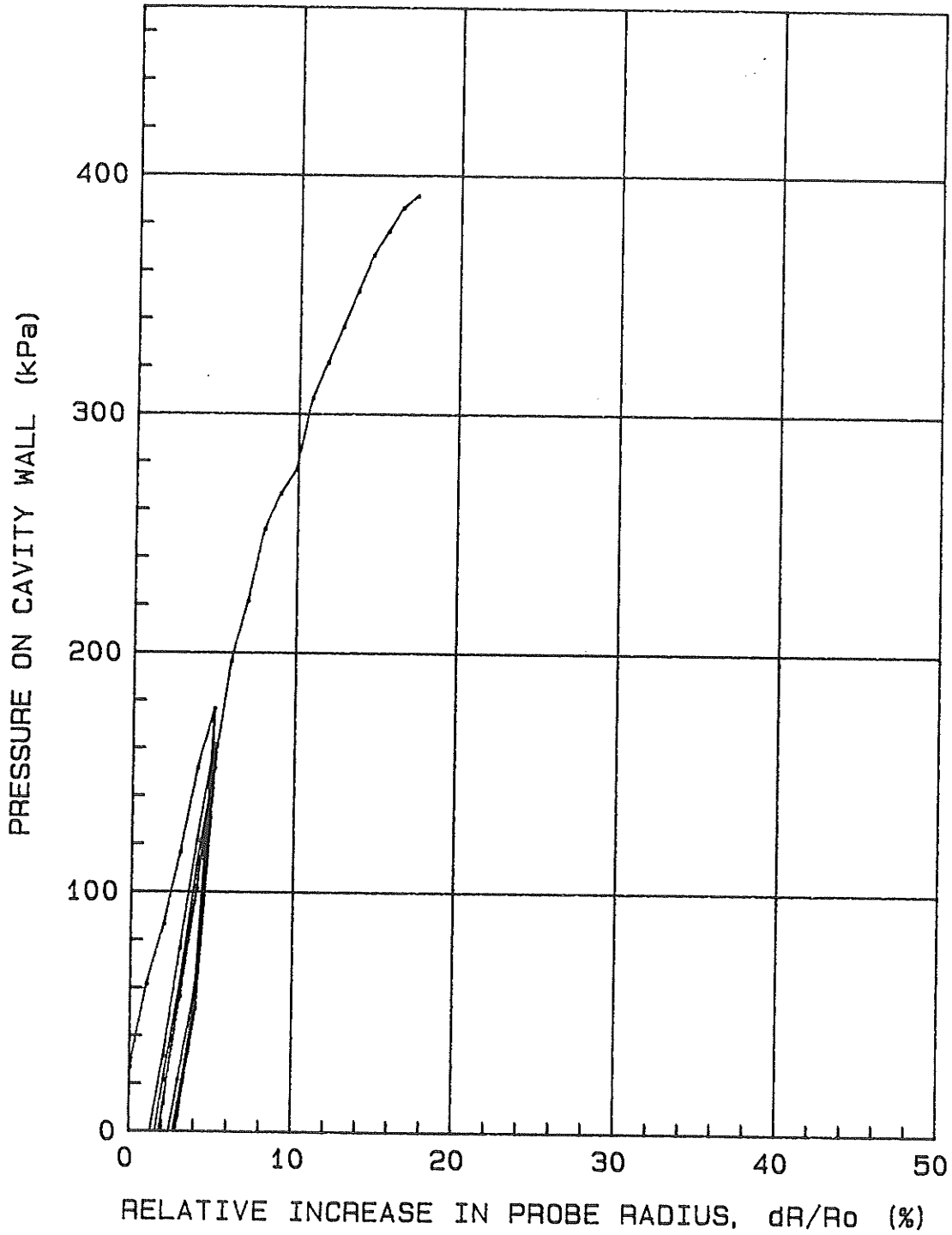
Saskatoon R/W15-33: Oct/88: 5+150: 3mLt: Hole#2: 0.50m.

Po = 12.5 kPa      Eo = 34402 kPa  
P1 = 1150 kPa      Er = 40141 kPa  
P1\* = 1137.5 kPa    Eo/P1\* = 30.2



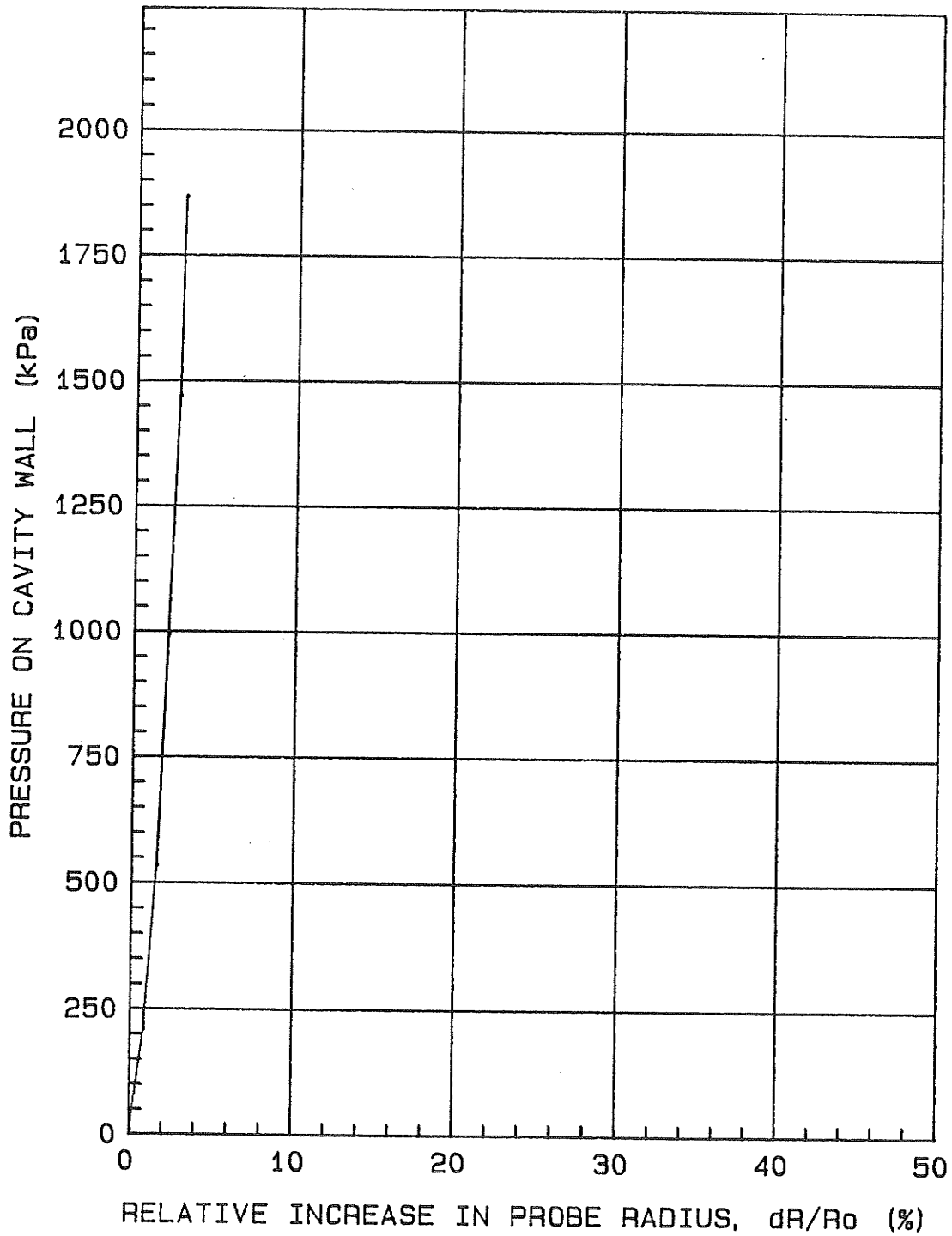
Saskatoon R/W 15-33: Oct/88: 5+150: 3mLt: Hole#2: 1.20m.

Po = 23 kPa                      Eo = 4073 kPa  
P1 = 410 kPa                     Er = 6551 kPa  
P1\* = 387 kPa                   Eo/P1\* = 10.5



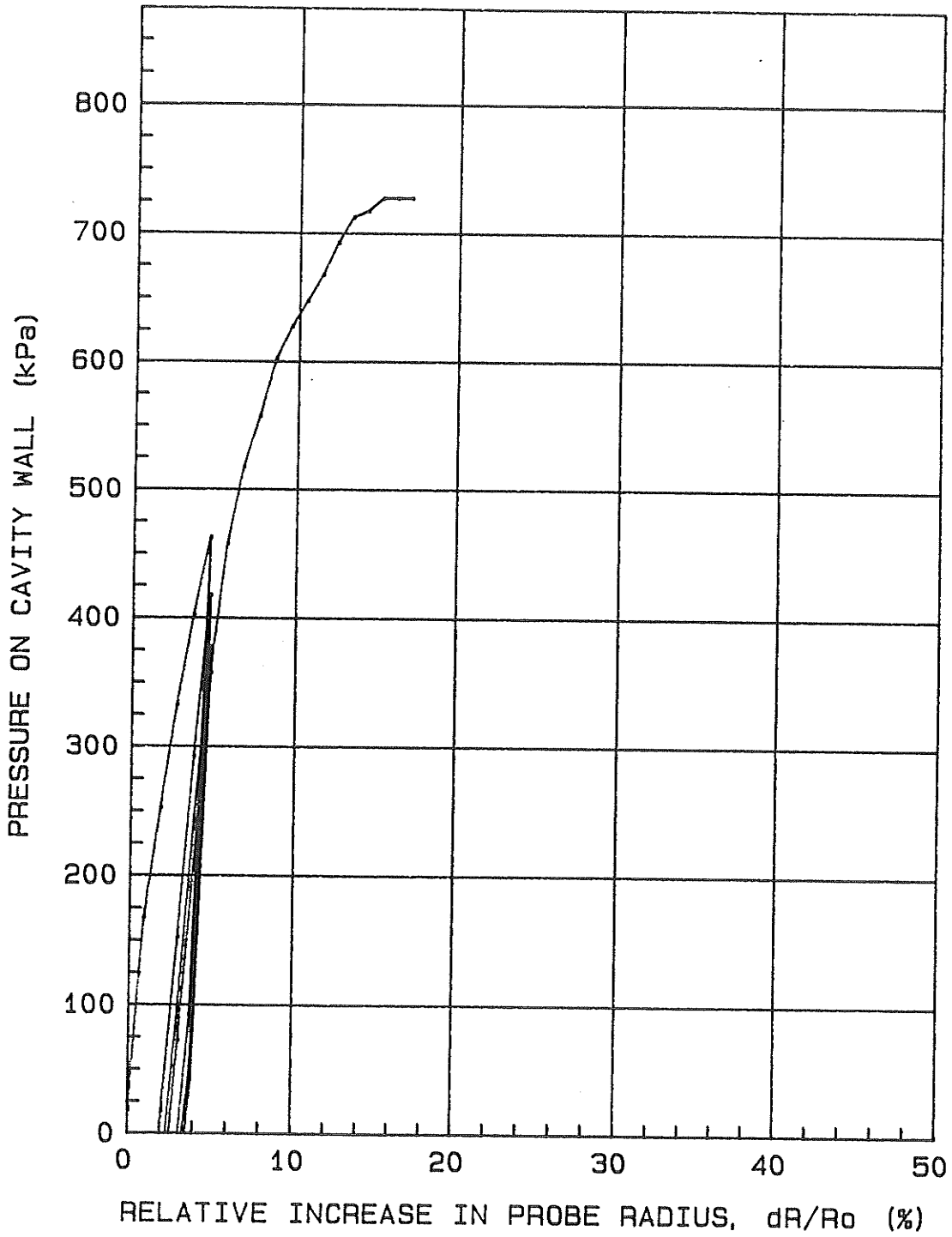
Saskatoon R/W15-33: Oct/88: 5+150: 3mLt: Hole#2: 2.20m.

Po = 5.3 kPa      Eo = 109820 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



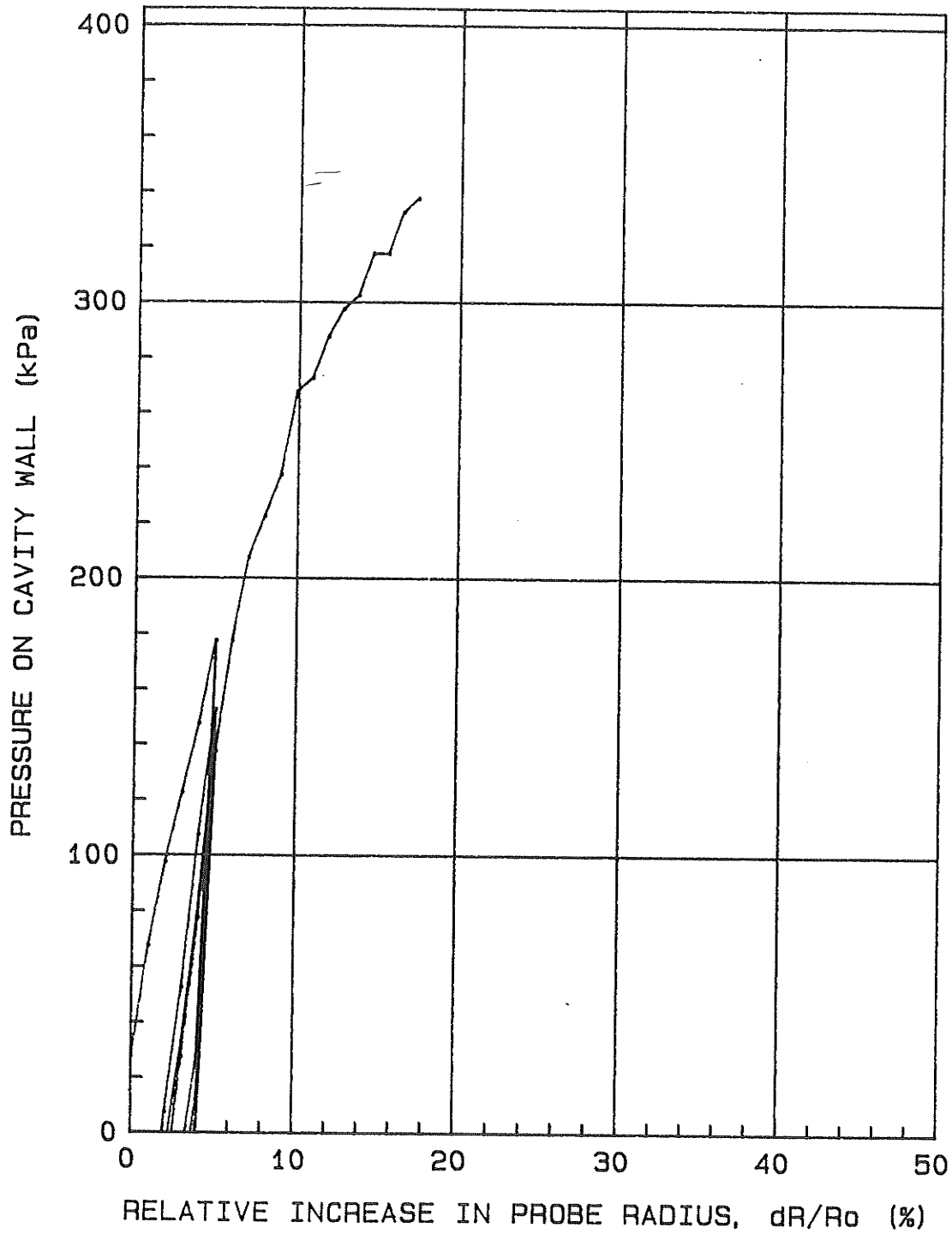
Saskatoon R/W15-33: Oct/88: 5+360: 3mRt: Hole#3: 0.50m.

Po = 13.6 kPa      Eo = 22273 kPa  
P1 = 720 kPa      Er = 22228 kPa  
P1\* = 706.4 kPa    Eo/P1\* = 31.5



Saskatoon R/W15-33: Oct/88: 5+360: 3mRt: Hole#3: 1.30m.

Po = 22.8 kPa      Eo = 5295 kPa  
P1 = 320 kPa      Er = 7489 kPa  
P1\* = 297.2 kPa    Eo/P1\* = 17.8



Saskatoon R/W15-33: Oct/88: 5+360: 3mRt: Hole#3: 2.30m.

Po = 5.3 kPa

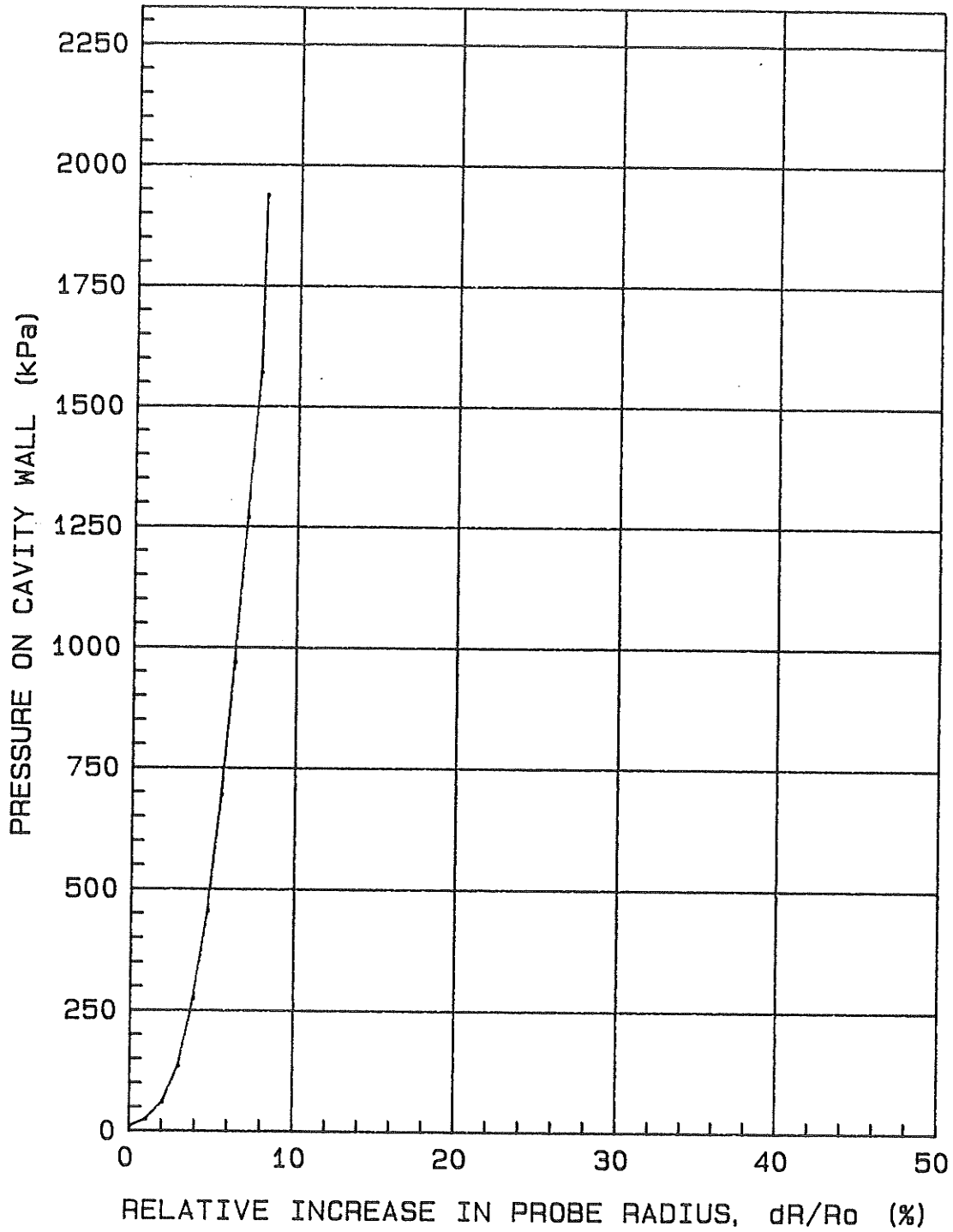
Eo = 57322 kPa

P1 = kPa

Er = kPa

P1\* = kPa

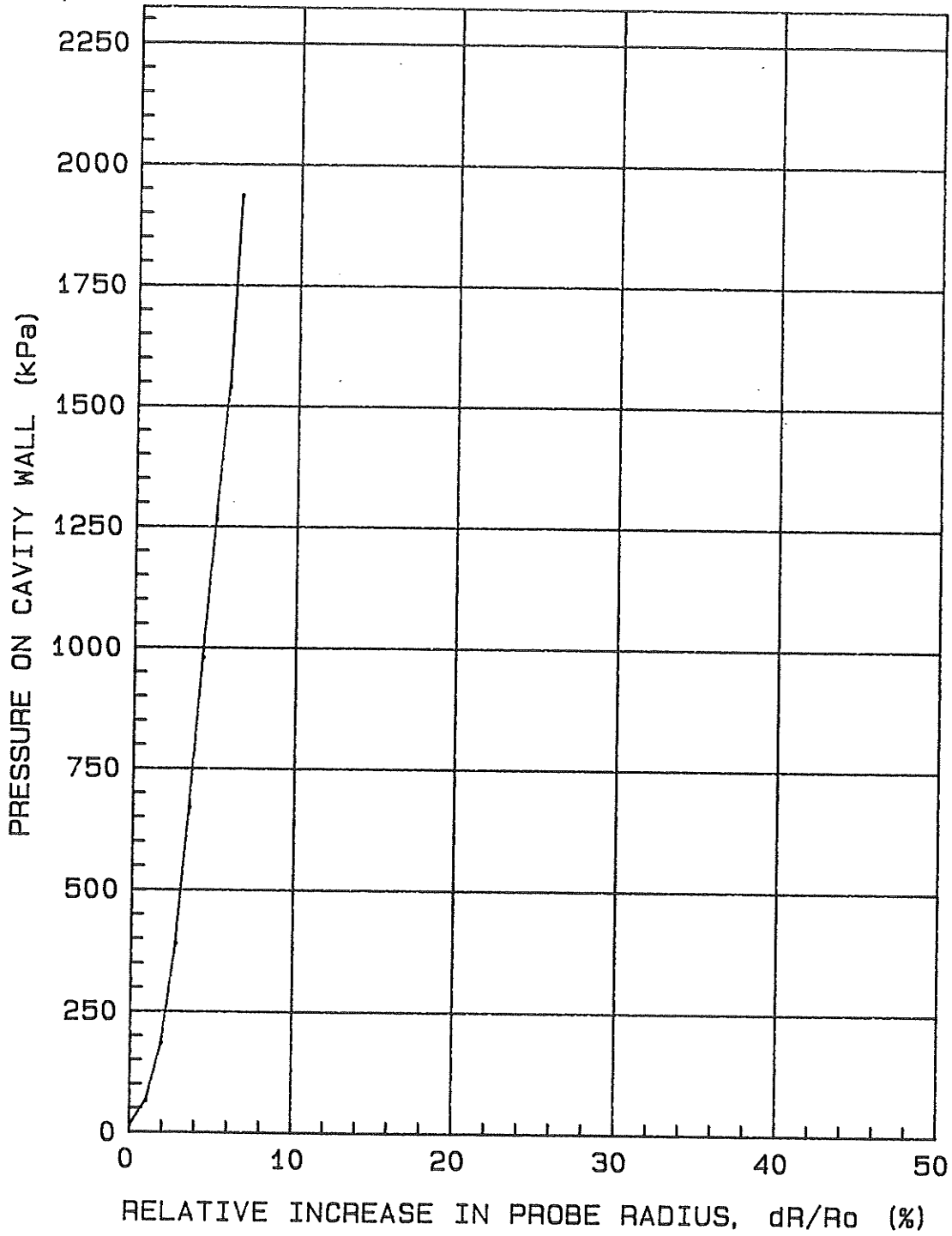
Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+450: 3mLt: Hole#4: 0.50m.

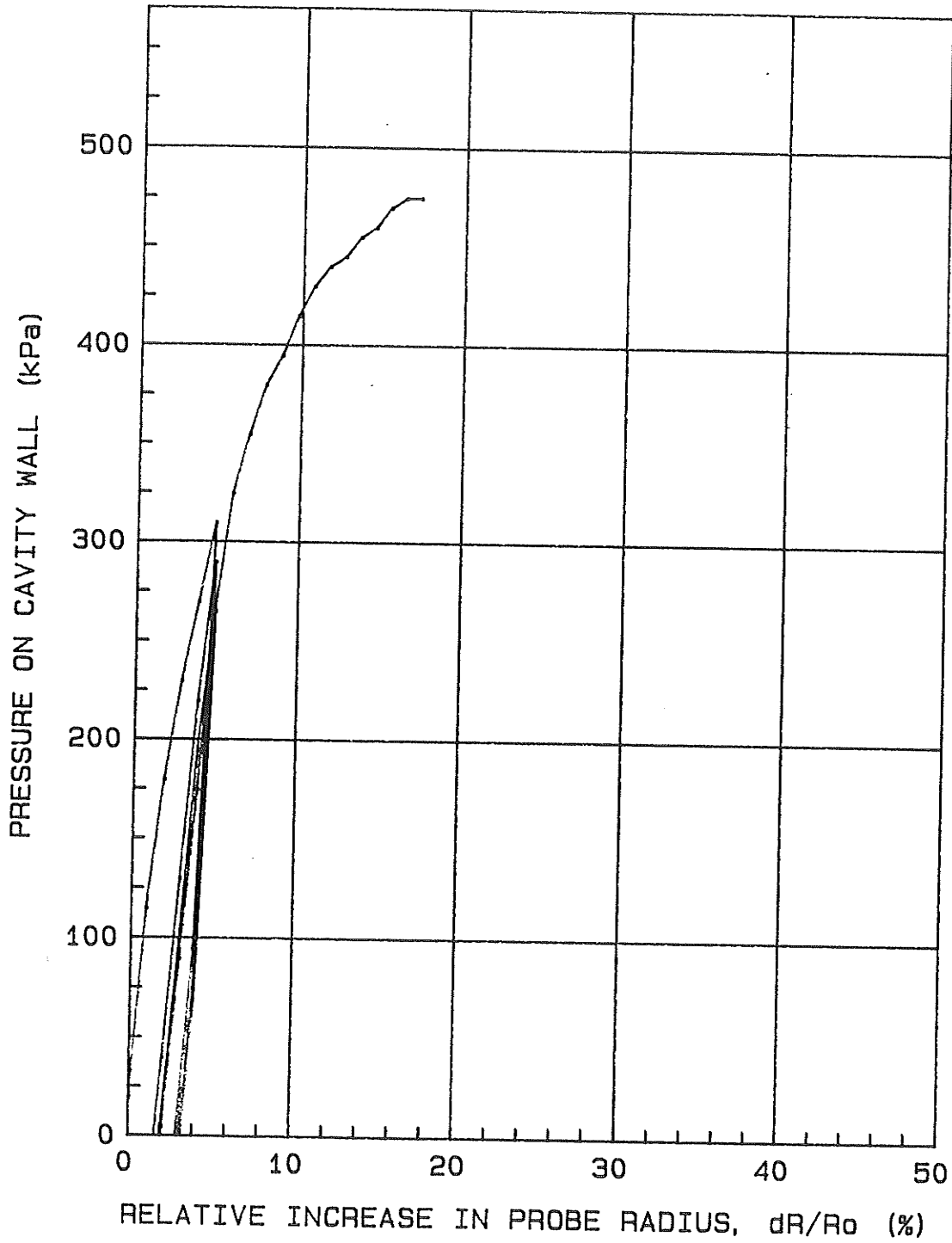


$P_0 = 10.5 \text{ kPa}$        $E_0 = 53705 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad$



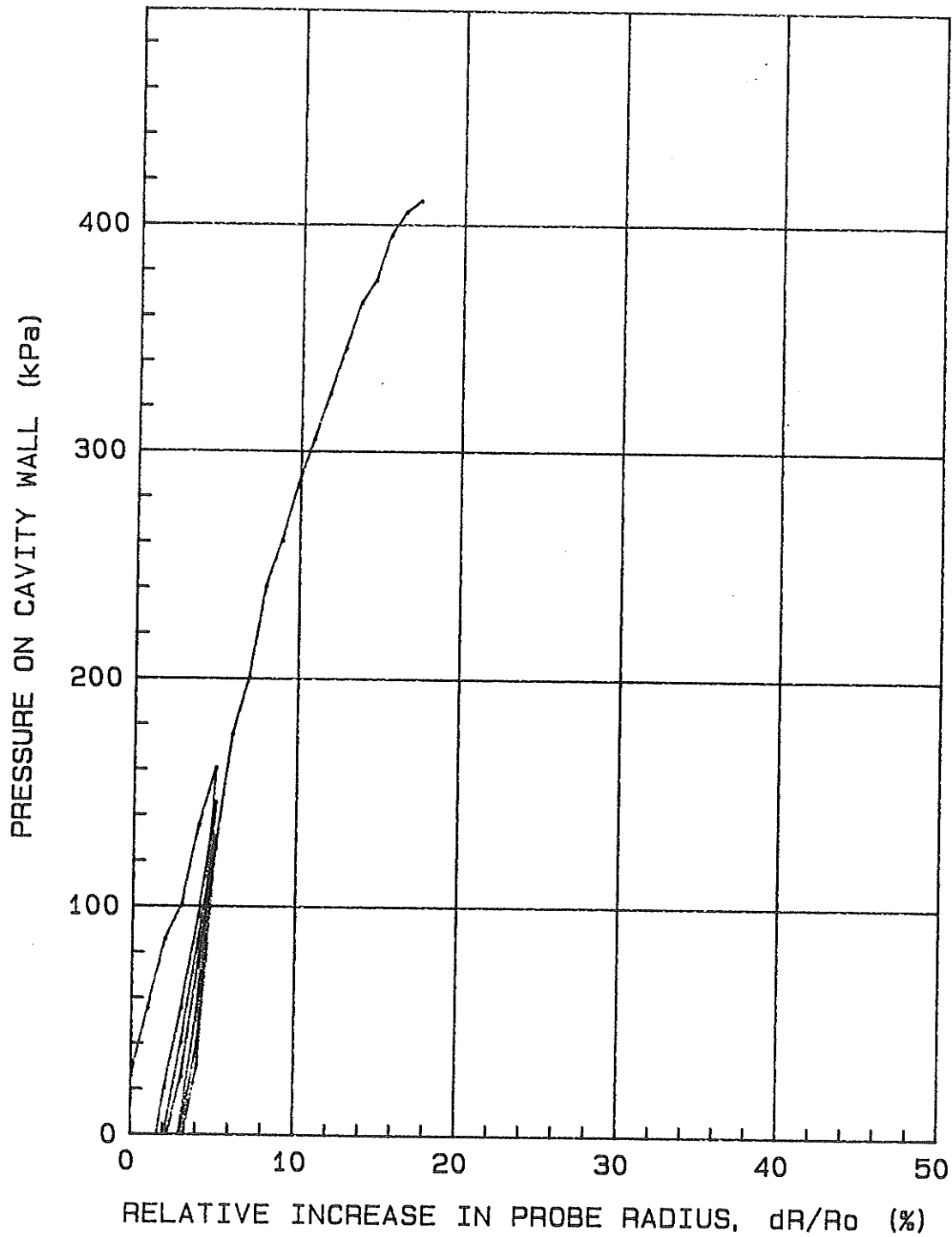
Saskatoon R/W15-33: Oct/88; 5+450: 3mLt: Hole#4: 1.00m.

$P_0 = 14.9 \text{ kPa}$        $E_0 = 13296 \text{ kPa}$   
 $P_1 = 470 \text{ kPa}$        $E_r = 12655 \text{ kPa}$   
 $P_{1*} = 455.1 \text{ kPa}$      $E_0/P_{1*} = 29.2$



Saskatoon R/W15-33: Oct/88: 5+450: 3mLt: Hole#4: 1.50m.

Po = 21.9 kPa      Eo = 3972 kPa  
P1 = 410 kPa      Er = 7101 kPa  
P1\* = 388.1 kPa    Eo/P1\* = 10.2



Saskatoon R/W15-33: Oct/88: 5+450: 3mLt: Hole#4: 2.10m.

Po = 5.3 kPa

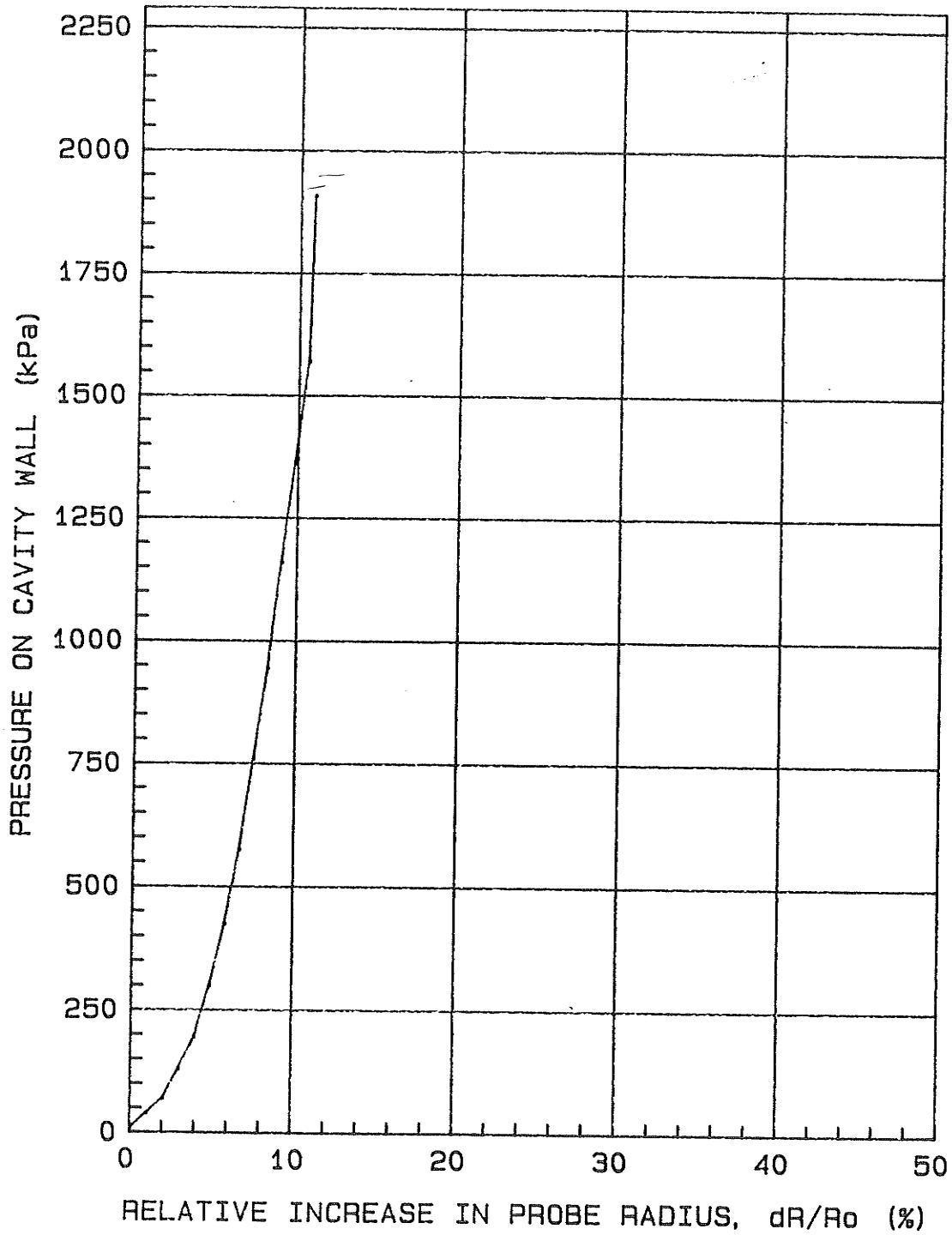
Eo = 37202 kPa

P1 = kPa

Er = kPa

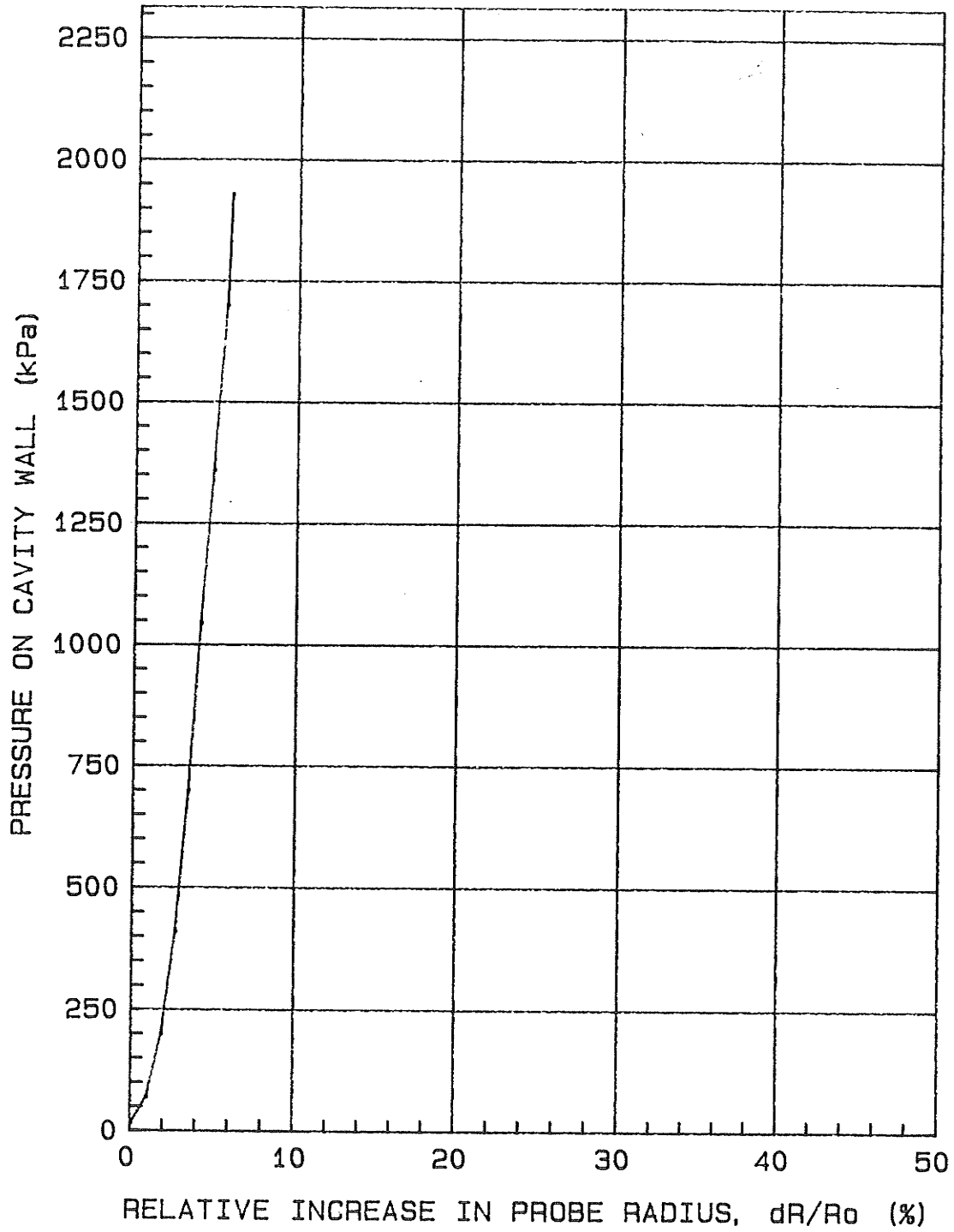
P1\* = kPa

Eo/P1\* =



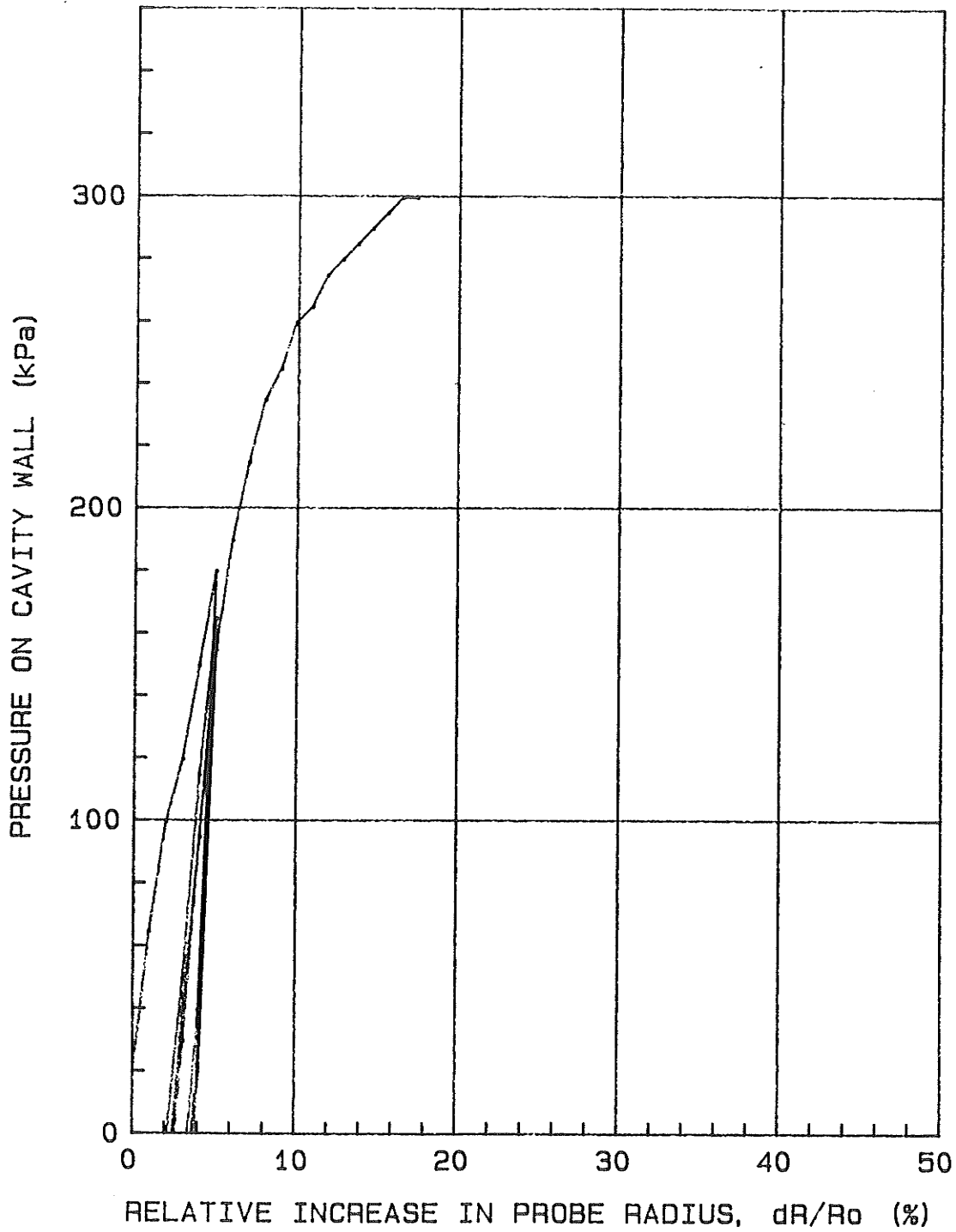
Saskatoon R/W15-33: Oct/88: 5+540: 3mLt: Hole#5: 0.50m.

Po = 10.5 kPa      Eo = 65732 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =           



Saskatoon R/W15-33: Oct/88: 5+540: 3mLt: Hole#5: 1.00m.

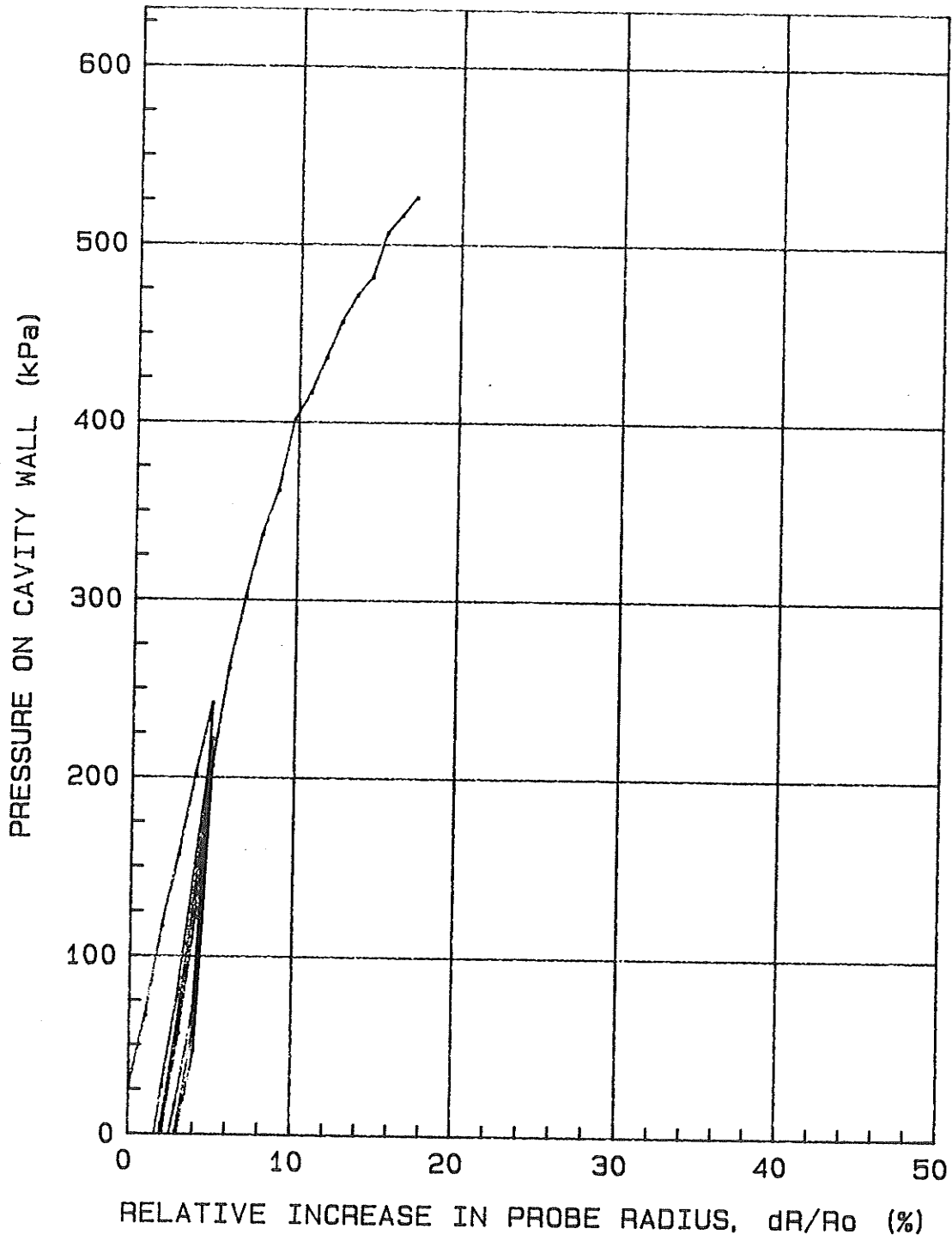
$P_0 = 14.9 \text{ kPa}$        $E_0 = 5986 \text{ kPa}$   
 $P_1 = 300 \text{ kPa}$        $E_r = 8984 \text{ kPa}$   
 $P_1^* = 285.1 \text{ kPa}$      $E_0/P_1^* = 20.9$



Saskatoon R/W15-33: Oct/88: 5+540: 3mLt: Hole#5: 1.50m.

Po = 23 kPa  
P1 = 550 kPa  
P1\* = 527 kPa

Eo = 5909 kPa  
Er = 9799 kPa  
Eo/P1\* = 11.2



Saskatoon R/W15-33: Oct/88: 5+540: 3mLt: Hole#5: 2.20m.

Po = 5.3 kPa

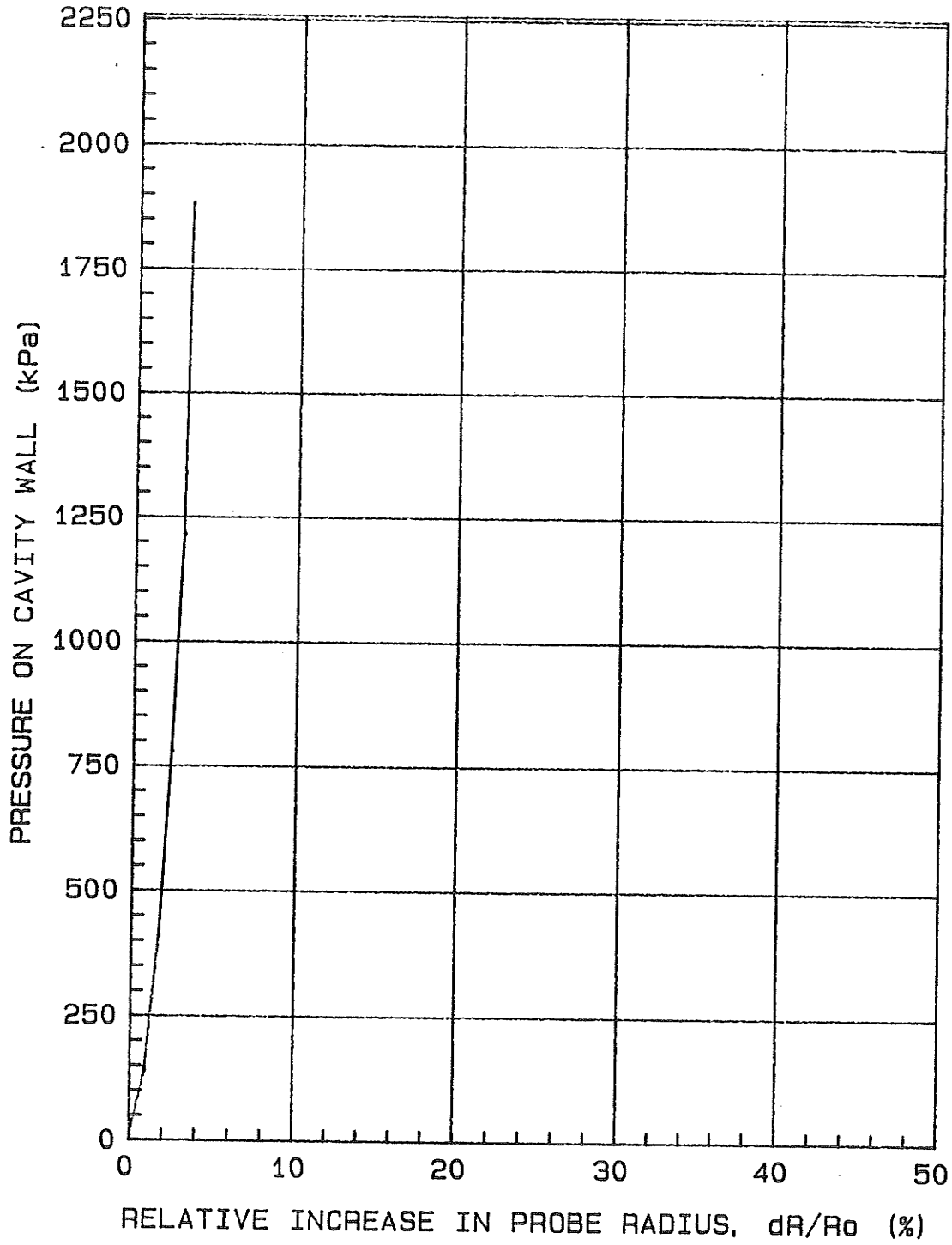
Eo = 97408 kPa

P1 = kPa

Er = kPa

P1\* = kPa

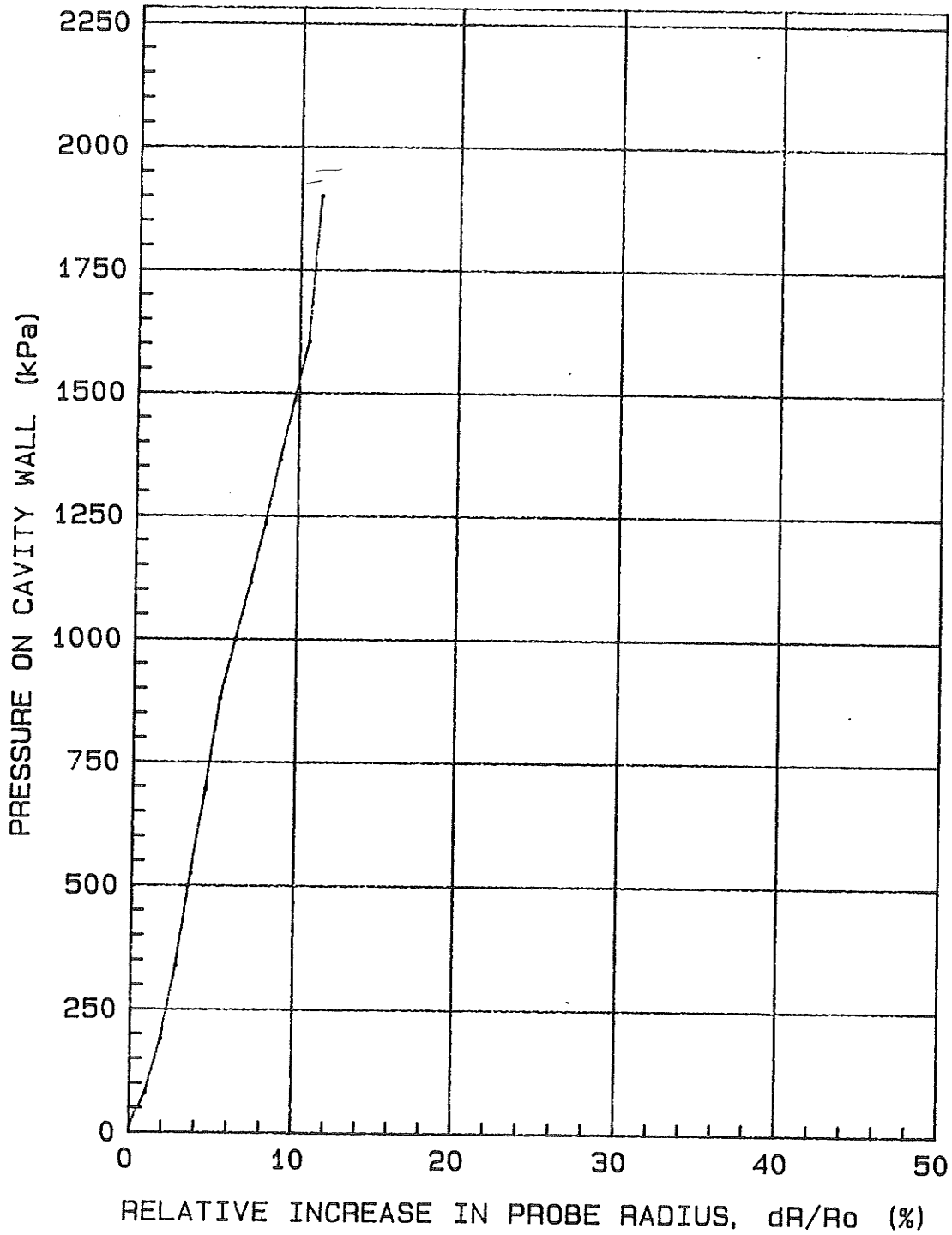
Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+630: 3mRt: Hole#6: 0.50m.

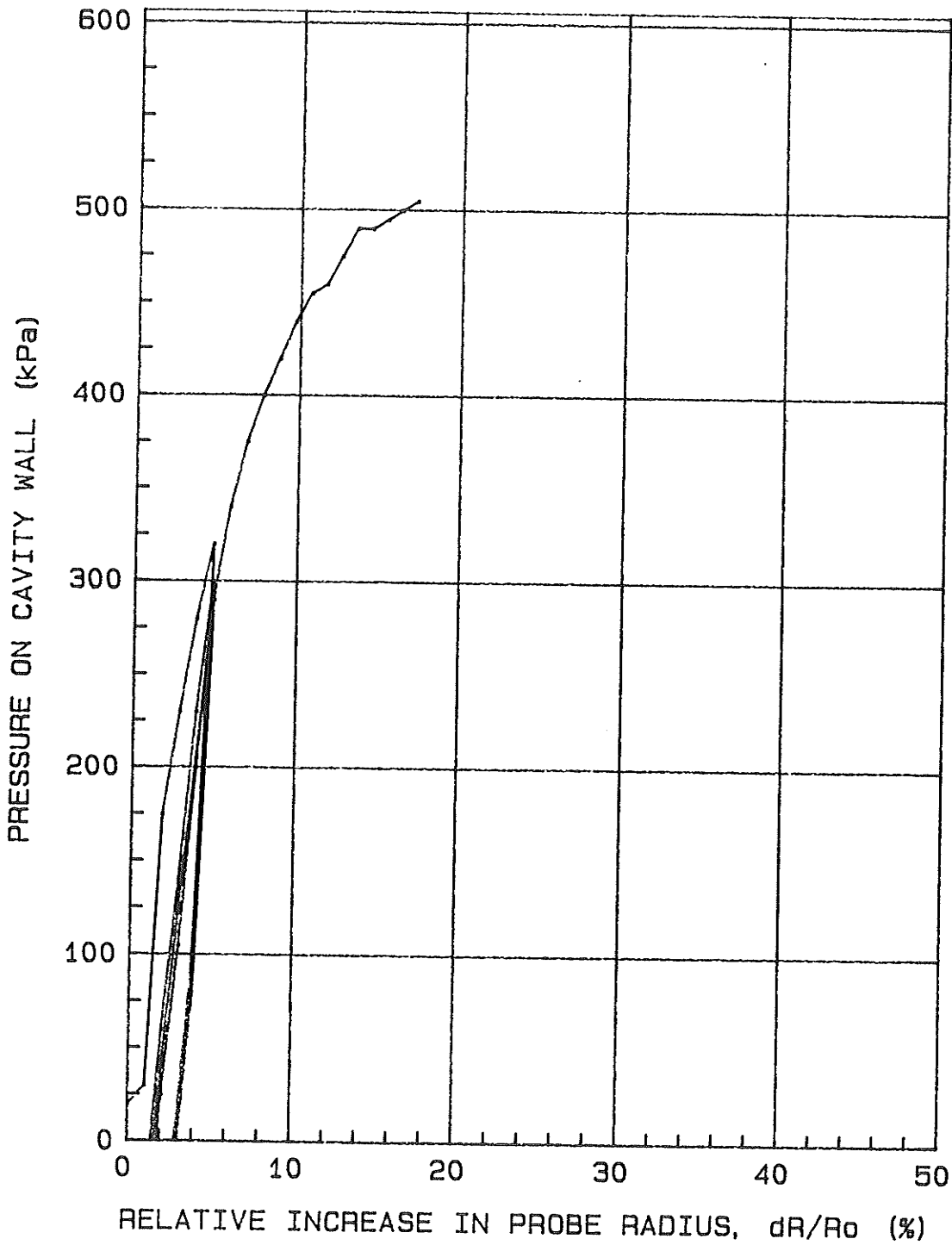


$P_0 = 10.5 \text{ kPa}$        $E_0 = 29352 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



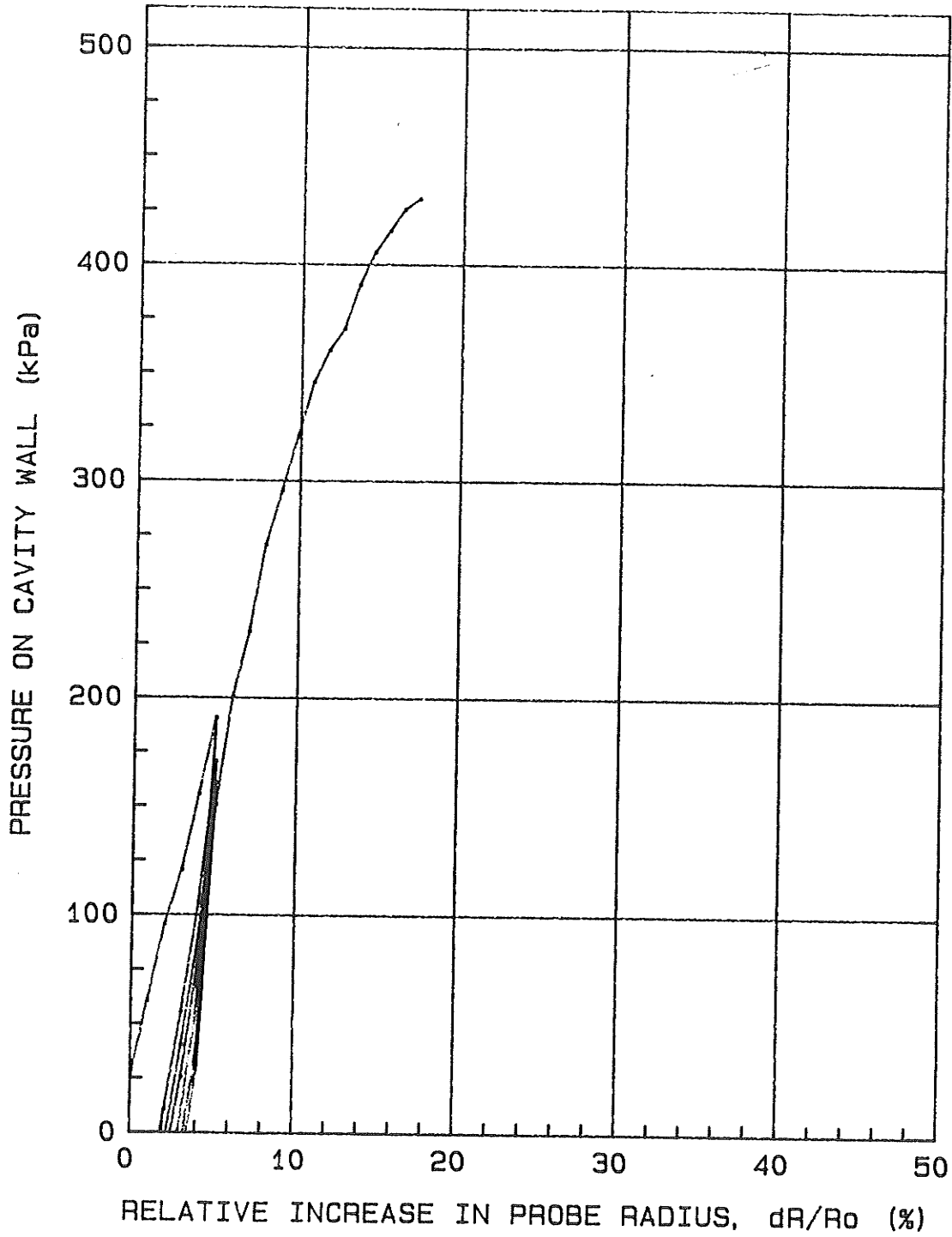
Saskatoon R/W15-33: Oct/88: 5+630: 3mRt: Hole#6: 1.00m.

Po = 15.7 kPa      Eo = 21855 kPa  
P1 = 490 kPa      Er = 12915 kPa  
P1\* = 474.3 kPa    Eo/P1\* = 46



Saskatoon R/W15-33: Oct/88: 5+630: 3mRt: Hole#6: 1.50m.

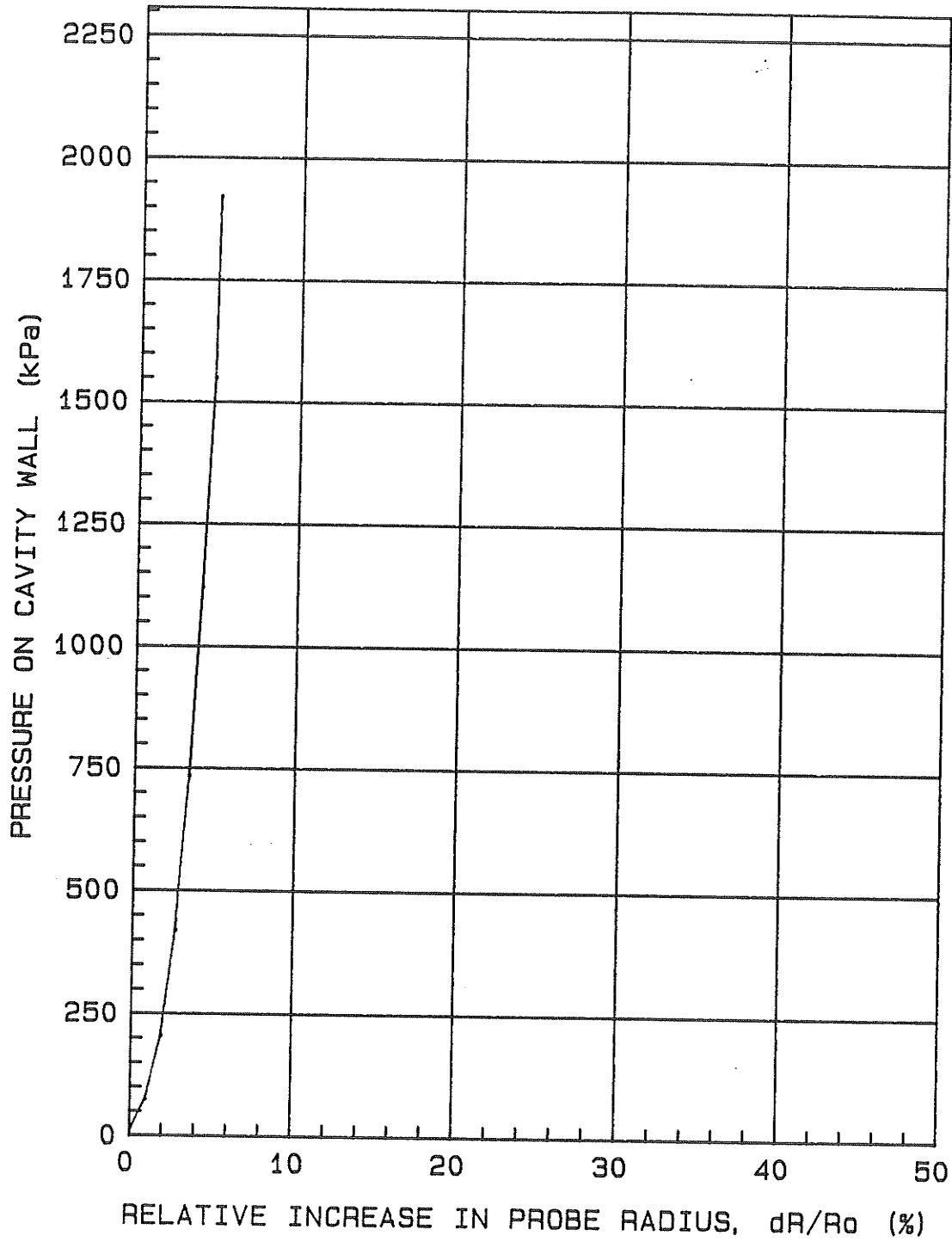
Po = 21.9 kPa      Eo = 4493 kPa  
P1 = 430 kPa      Er = 7760 kPa  
P1\* = 408.1 kPa    Eo/P1\* = 11



Saskatoon R/W15-33: Oct/88: 5+630: 3mRt: Hole#6: 2.10m.

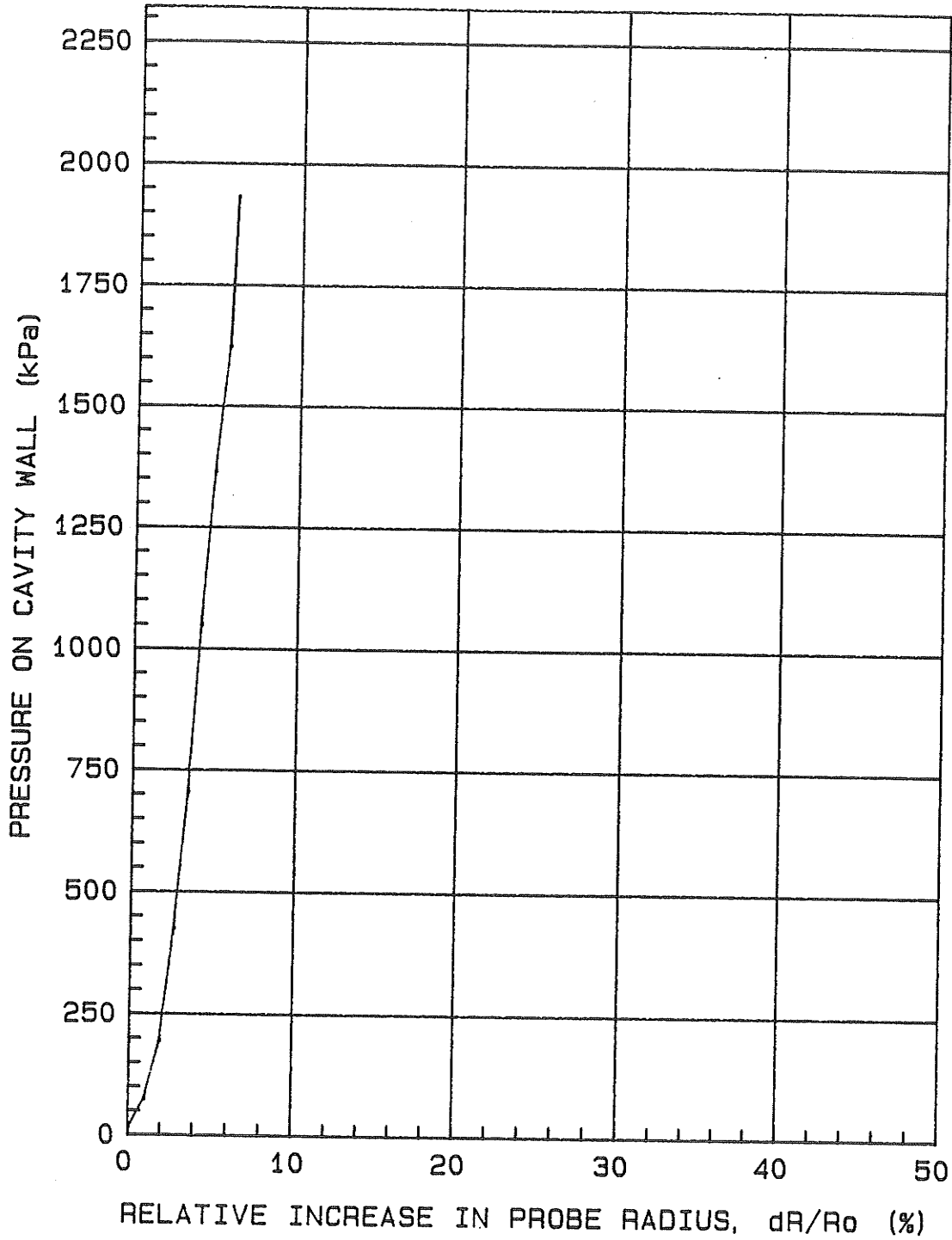
Po = 5.3 kPa  
P1 =            kPa  
P1\* =           kPa

Eo = 89780 kPa  
Er =            kPa  
Eo/P1\* =



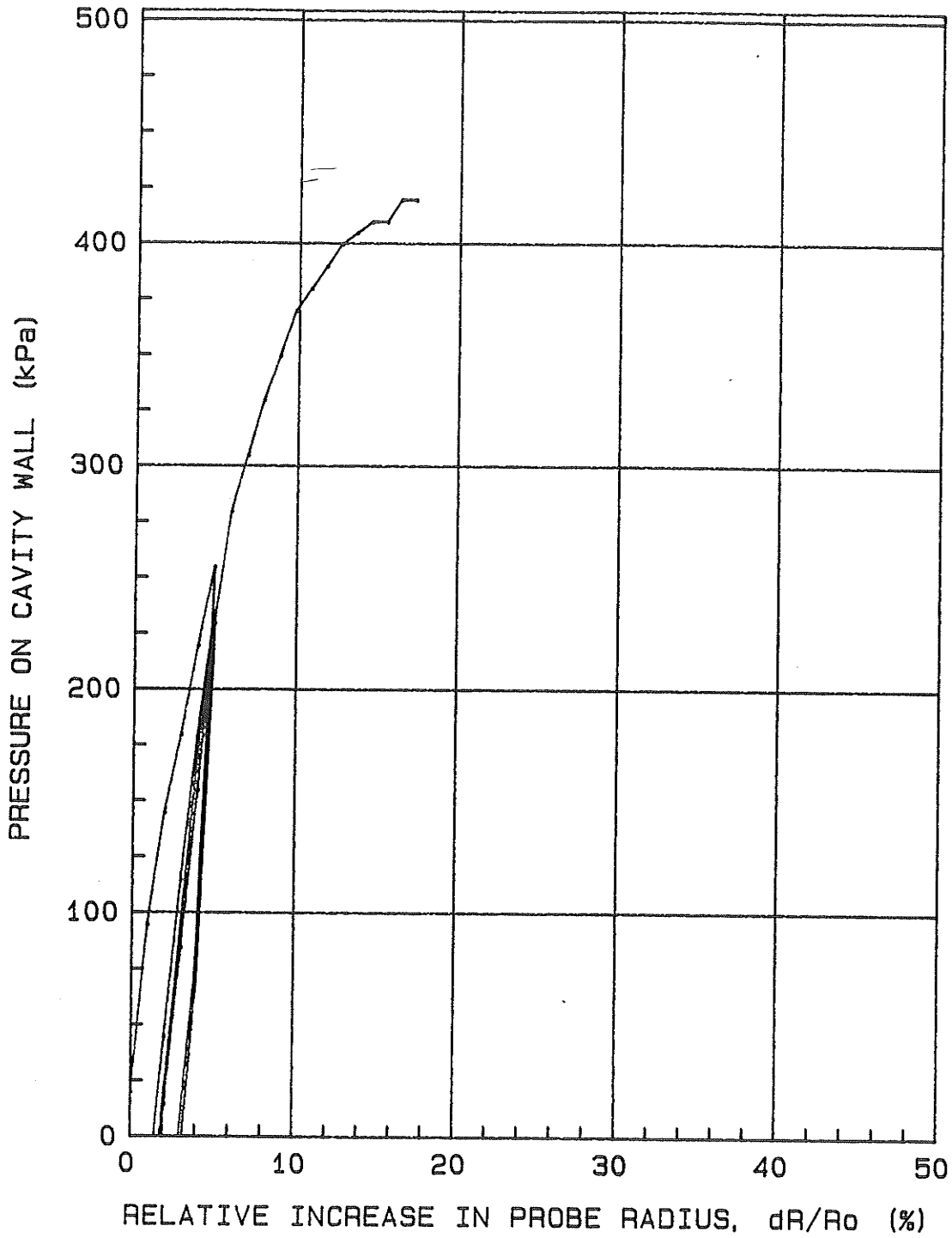
Saskatoon R/W15-33: Oct/88: 5+660: 20mLt: Hole#7: 0.50m.

$P_0 = 10.5 \text{ kPa}$        $E_0 = 65070 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad$



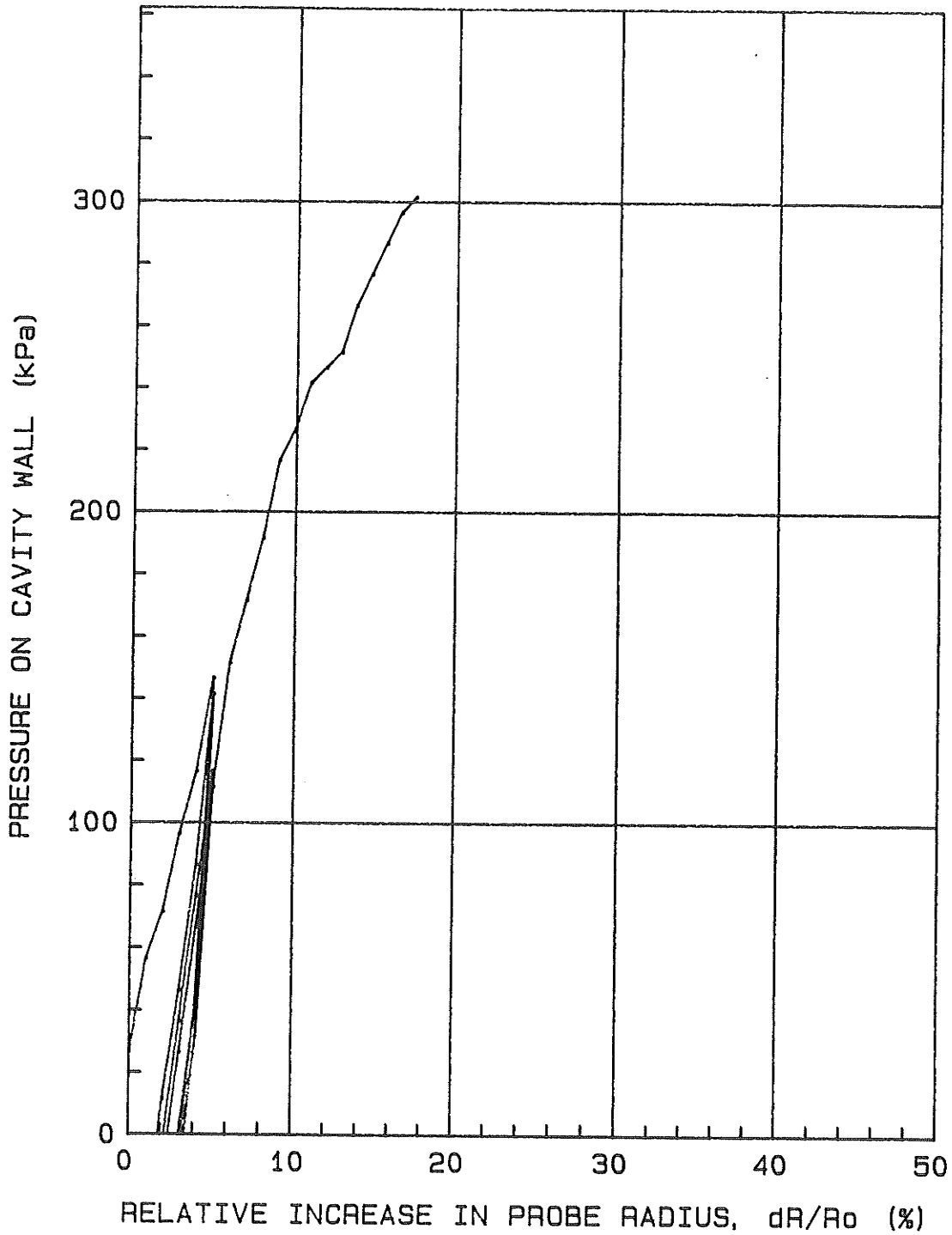
Saskatoon R/W15-33: Oct/88: 5+660: 20mLt: Hole#7: 1.00m.

$P_0 = 15.7 \text{ kPa}$        $E_0 = 10283 \text{ kPa}$   
 $P_1 = 400 \text{ kPa}$        $E_r = 10307 \text{ kPa}$   
 $P_{1*} = 384.3 \text{ kPa}$      $E_0/P_{1*} = 26.7$



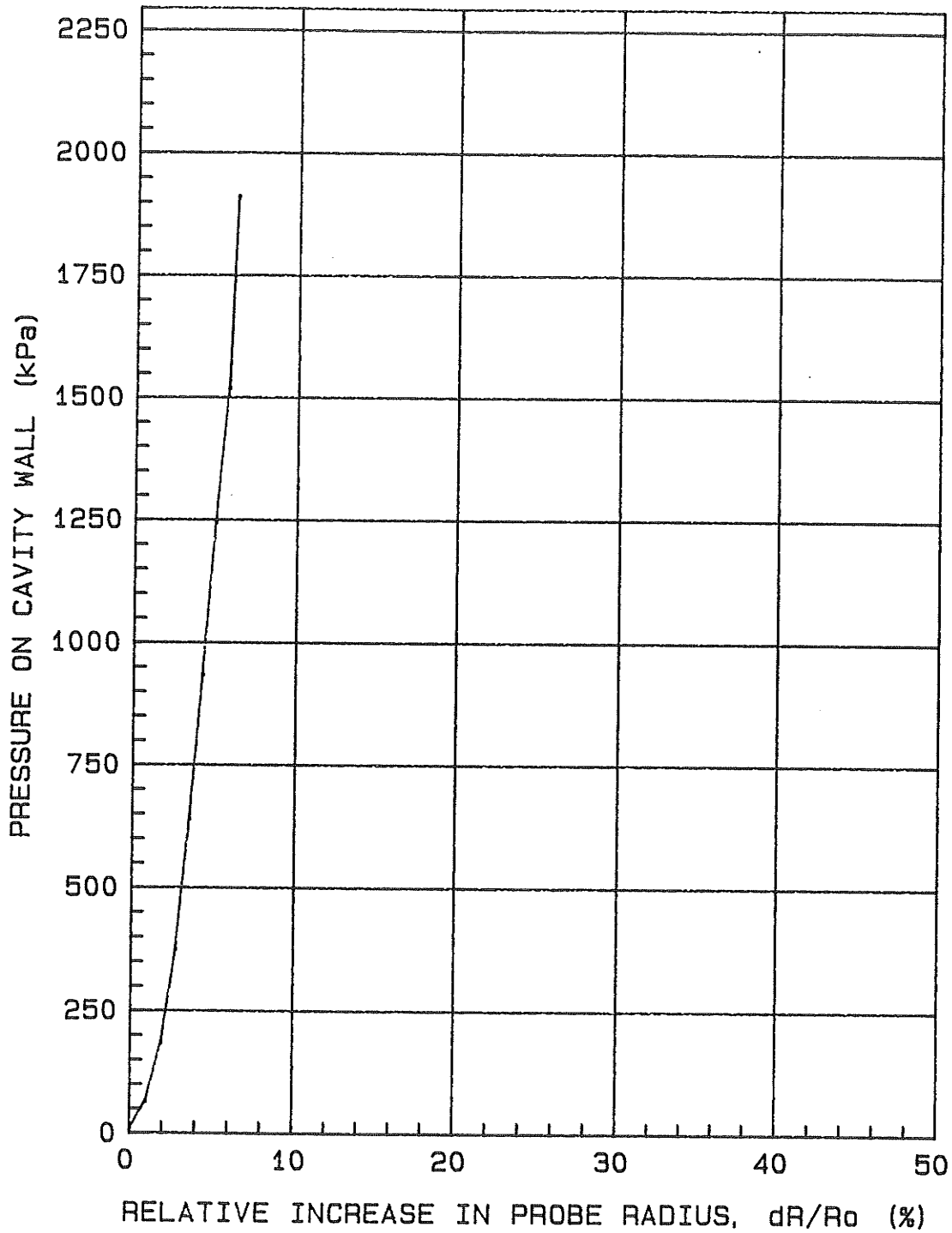
Saskatoon R/W15-33: Oct/88: 5+660: 20mLt: Hole#7: 1.50m.

Po = 23 kPa                      Eo = 3932 kPa  
P1 = 330 kPa                     Er = 5801 kPa  
P1\* = 307 kPa                   Eo/P1\* = 12.8



Saskatoon R/W15-33: Oct/88: 5+660: 20mLt: Hole#7: 2.20m.

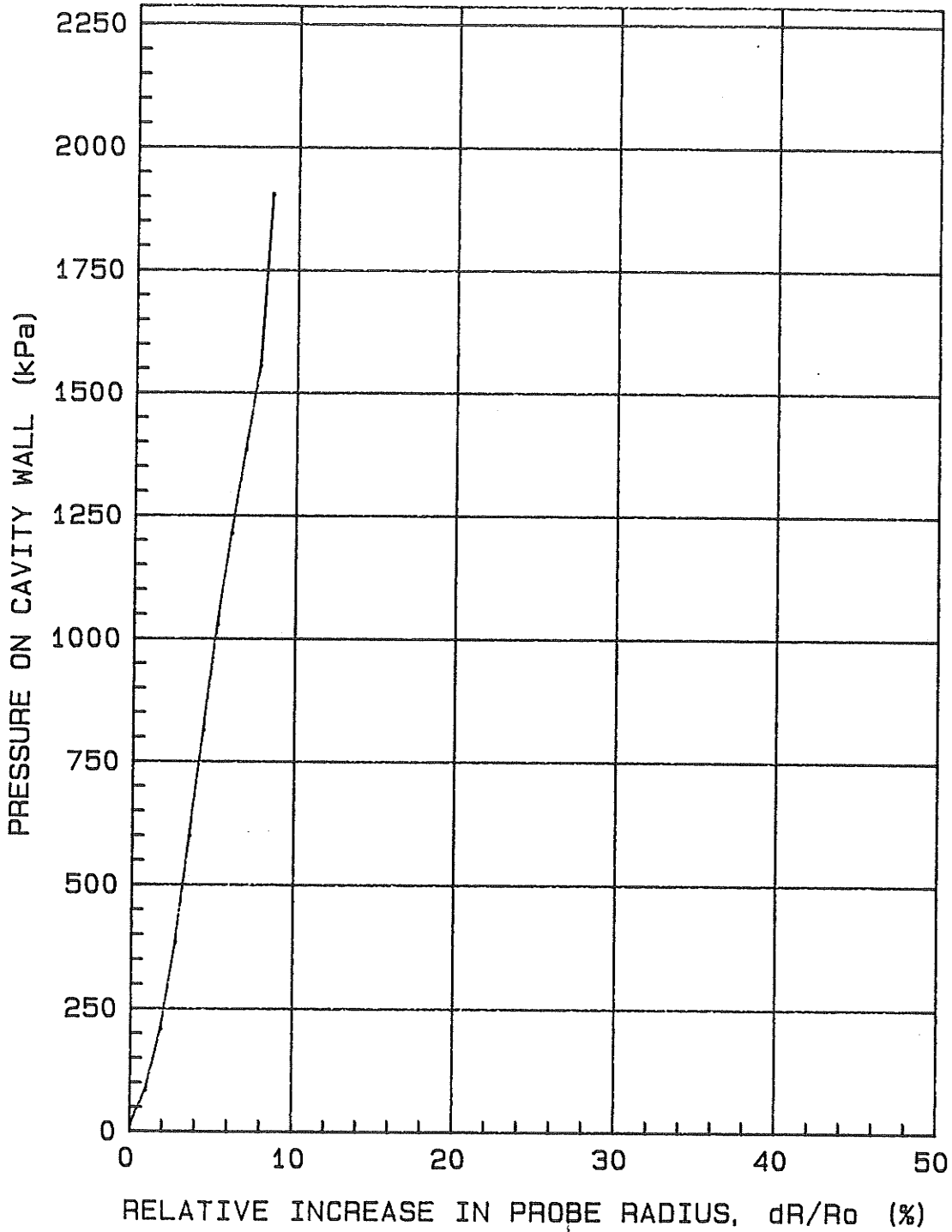
Po = 5.3 kPa      Eo = 55664 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+680: 20mLt: Hole#8: 0.50m.

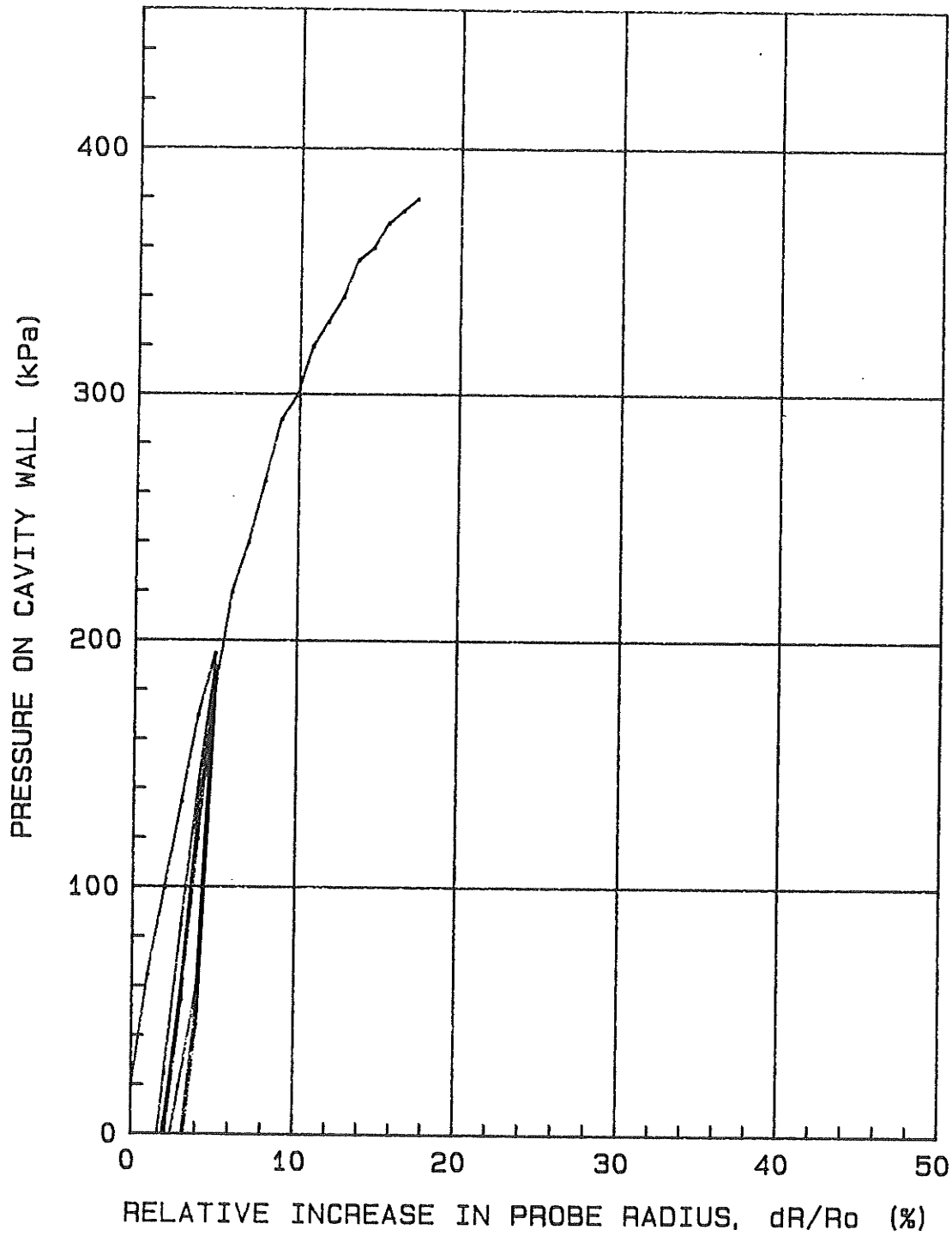


Po = 9.899999 kPa Eo = 36454 kPa  
P1 = kPa Er = kPa  
P1\* = kPa Eo/P1\* =



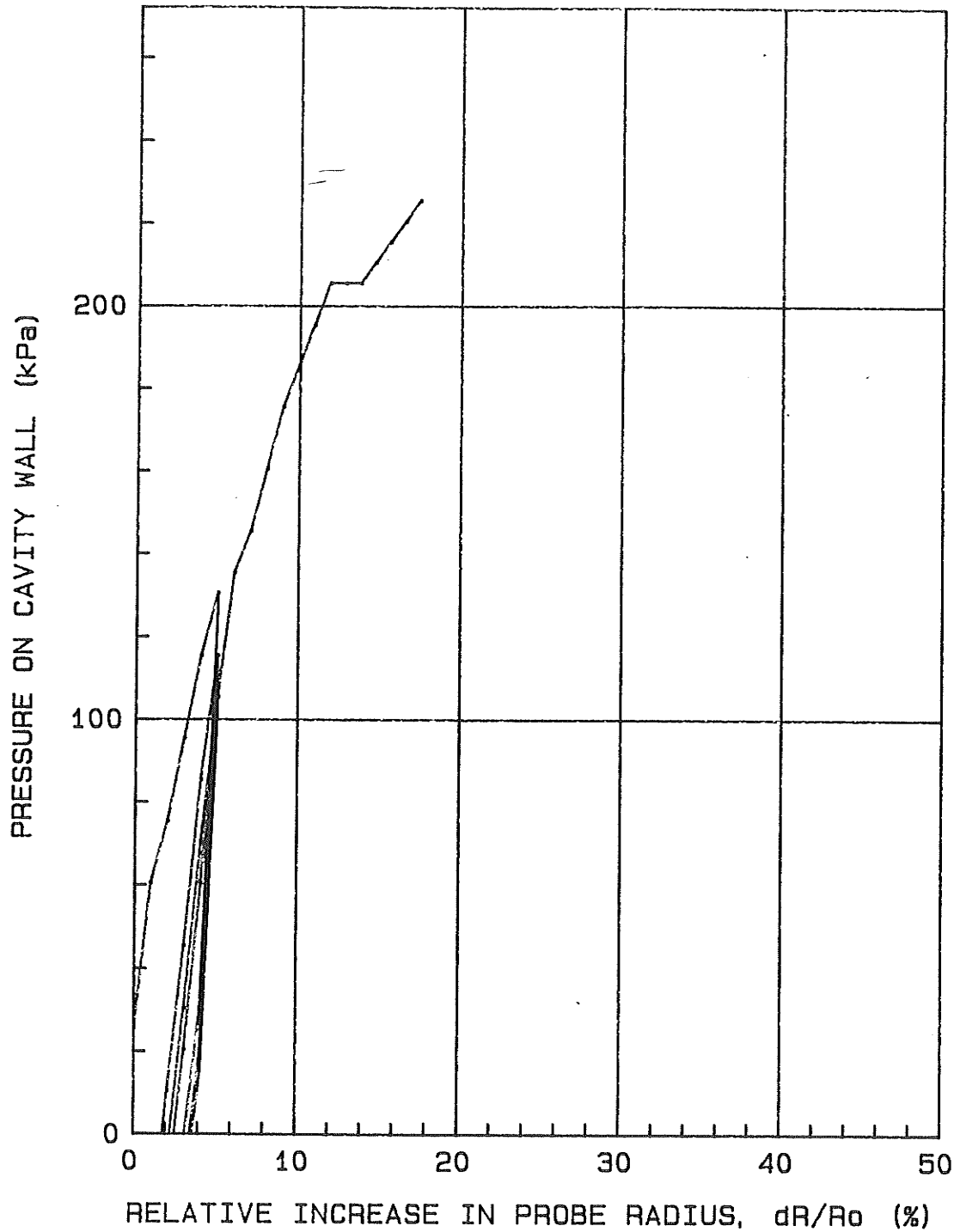
Saskatoon R/W15-33: Oct/88: 5+680: 20mLt: Hole#8: 0.94m.

$P_0 = 14.9 \text{ kPa}$        $E_0 = 5986 \text{ kPa}$   
 $P_1 = 400 \text{ kPa}$        $E_r = 8533 \text{ kPa}$   
 $P_{1*} = 385.1 \text{ kPa}$      $E_0/P_{1*} = 15.5$



Saskatoon R/W15-33: Oct/88: 5+680: 20mLt: Hole#8: 1.50m.

Po = 21.9 kPa      Eo = 4610 kPa  
P1 = 205 kPa      Er = 5563 kPa  
P1\* = 183.1 kPa    Eo/P1\* = 25.1



Saskatoon R/W15-33: Oct/88: 5+680: 20mLt: Hole#8: 2.10m.

Po = 5.3 kPa

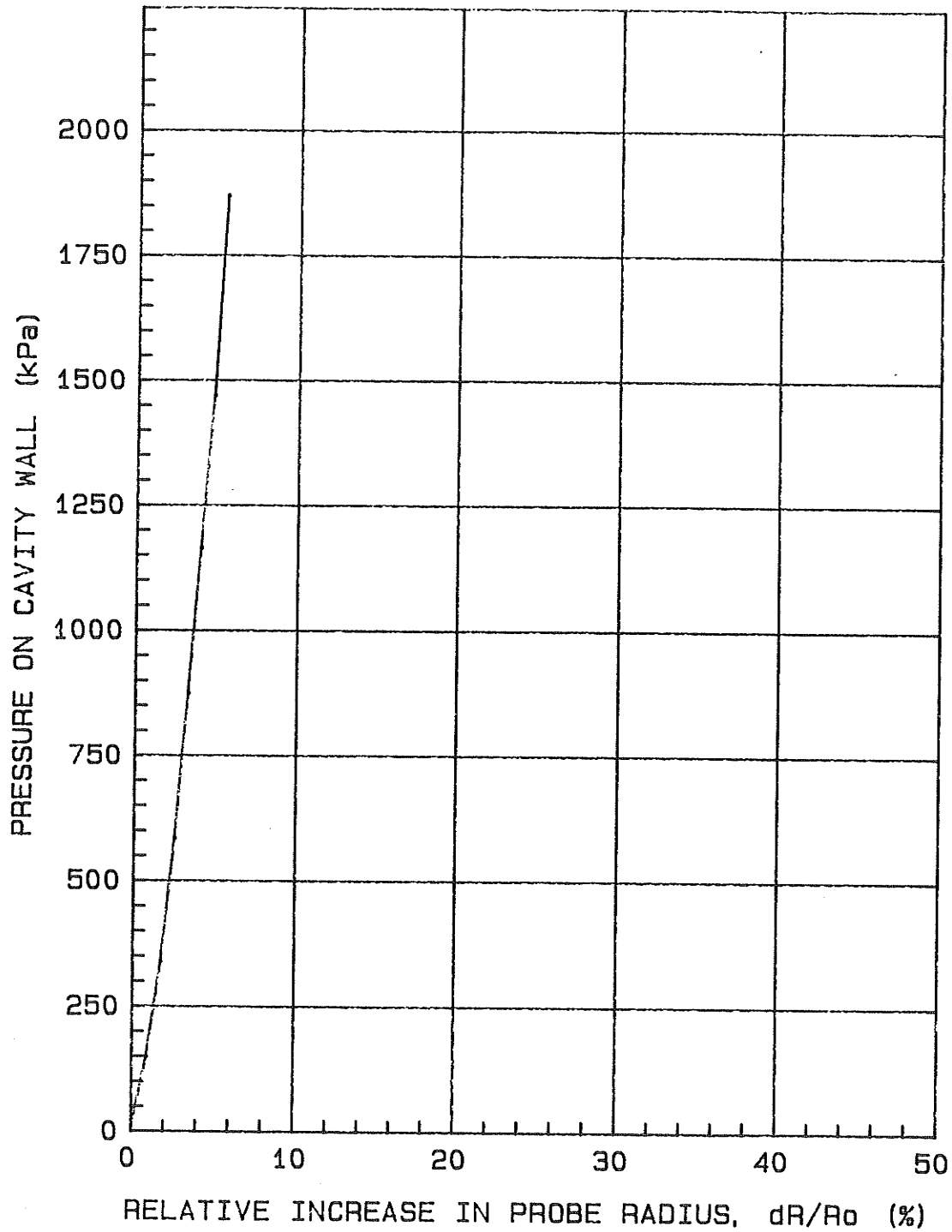
Eo = 54948 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+690: 7.5mLt: Hole#9: 0.50m.

Po = 10.5 kPa

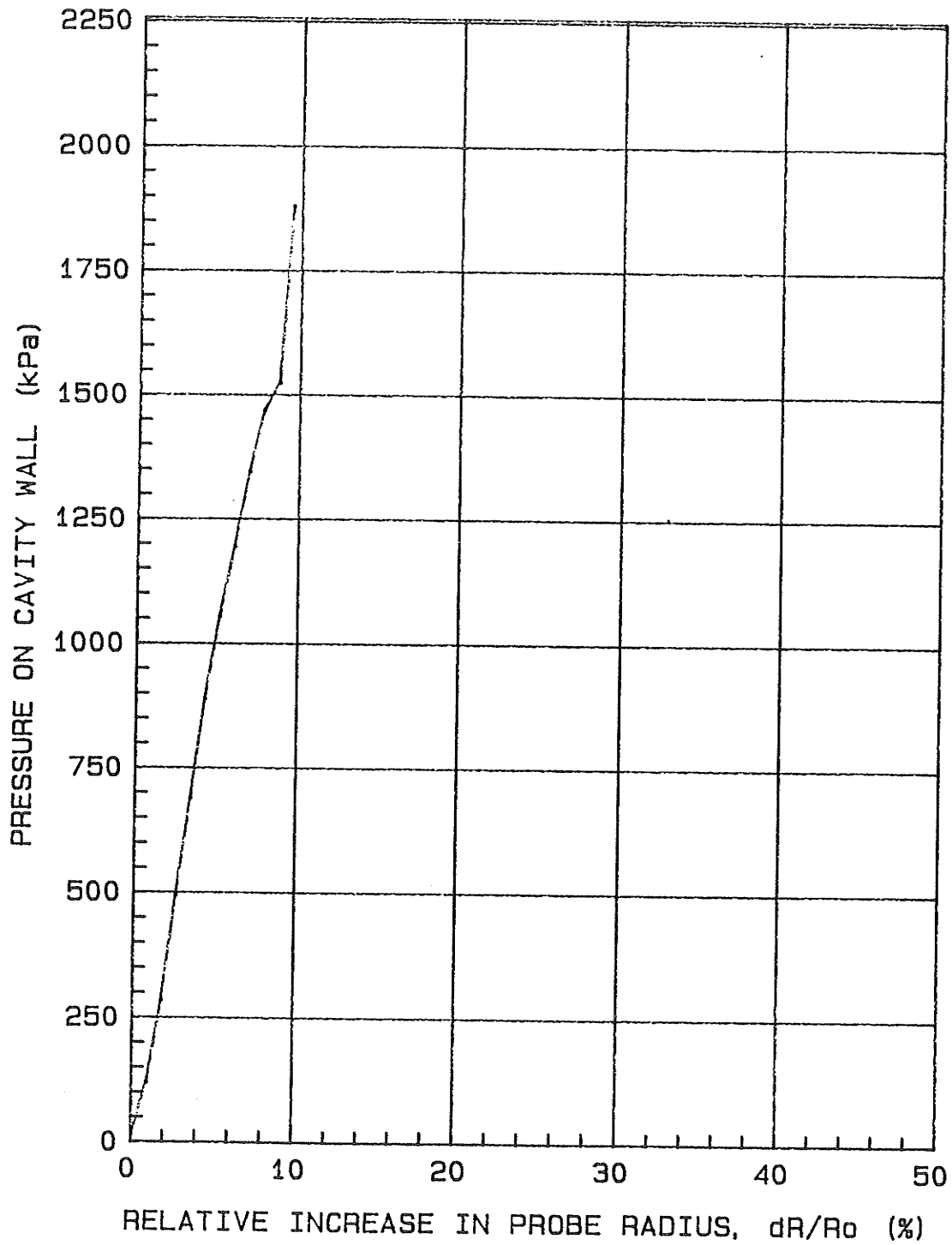
Eo = 31543 kPa

P1 = kPa

Er = kPa

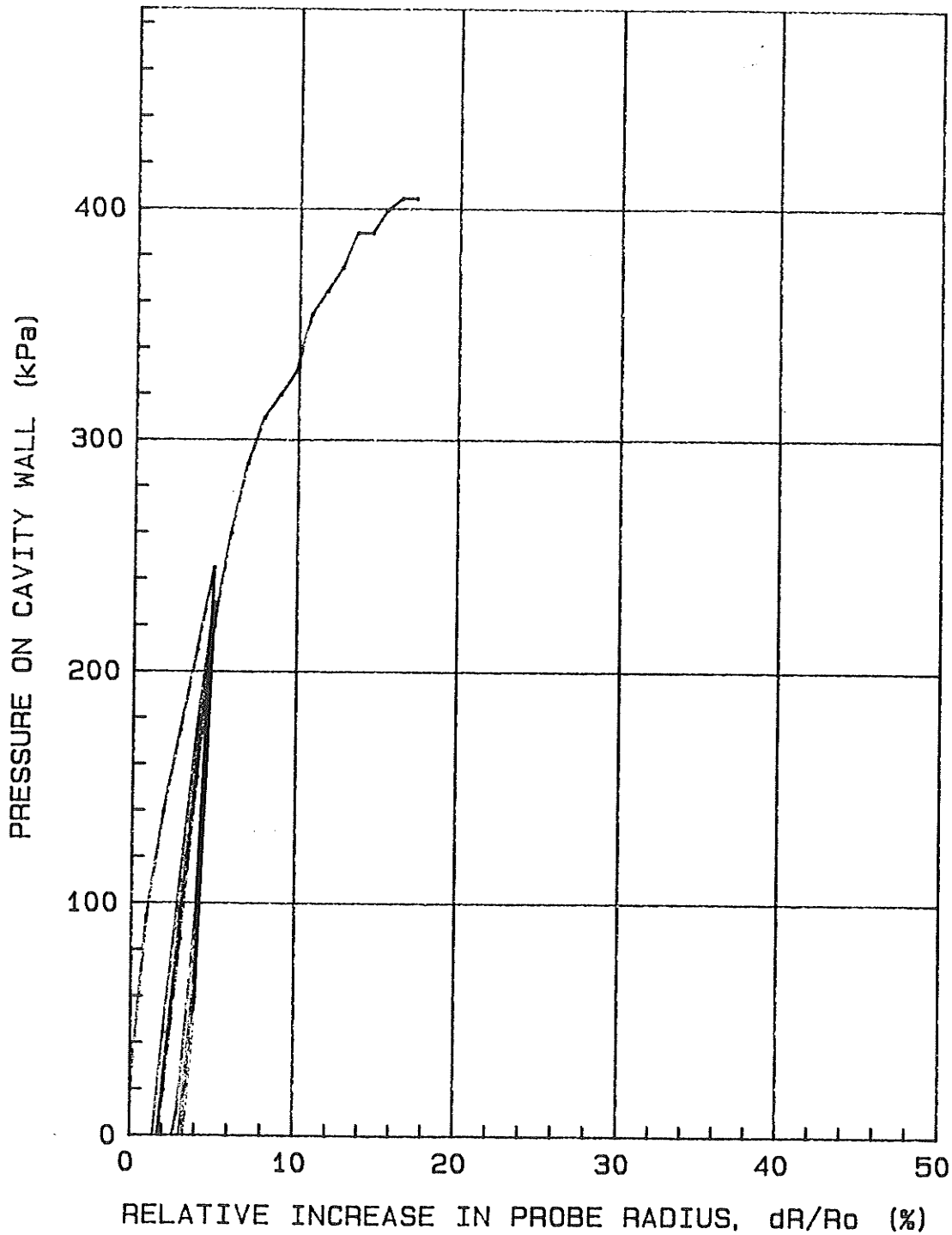
P1\* = kPa

Eo/P1\* =



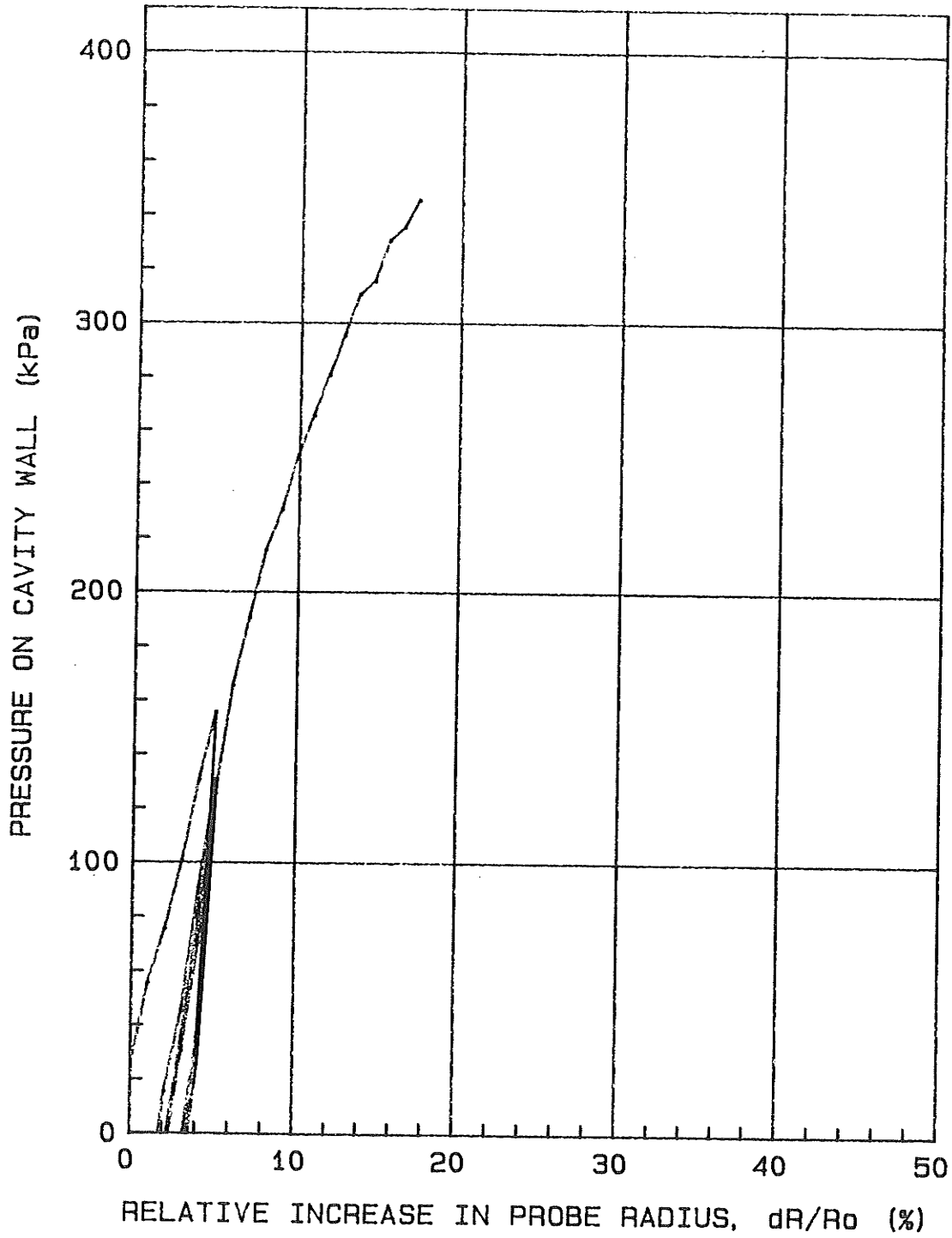
Saskatoon R/W15-33: Oct/88: 5+690: 7.5mLt: Hole#9: 1.00m.

Po = 14.9 kPa      Eo = 10283 kPa  
P1 = 490 kPa      Er = 9540 kPa  
P1\* = 475.1 kPa    Eo/P1\* = 21.6



Saskatoon R/W15-33: Oct/88: 5+690: 7.5mLt: Hole#9: 1.50m.

$P_0 = 20.8 \text{ kPa}$        $E_0 = 3516 \text{ kPa}$   
 $P_1 = 390 \text{ kPa}$        $E_r = 6298 \text{ kPa}$   
 $P_{1*} = 369.2 \text{ kPa}$      $E_0/P_{1*} = 9.5$



Saskatoon R/W15-33: Oct/88: 5+690: 7.5mLt: Hole#9: 2.10m.

Po = 5.3 kPa

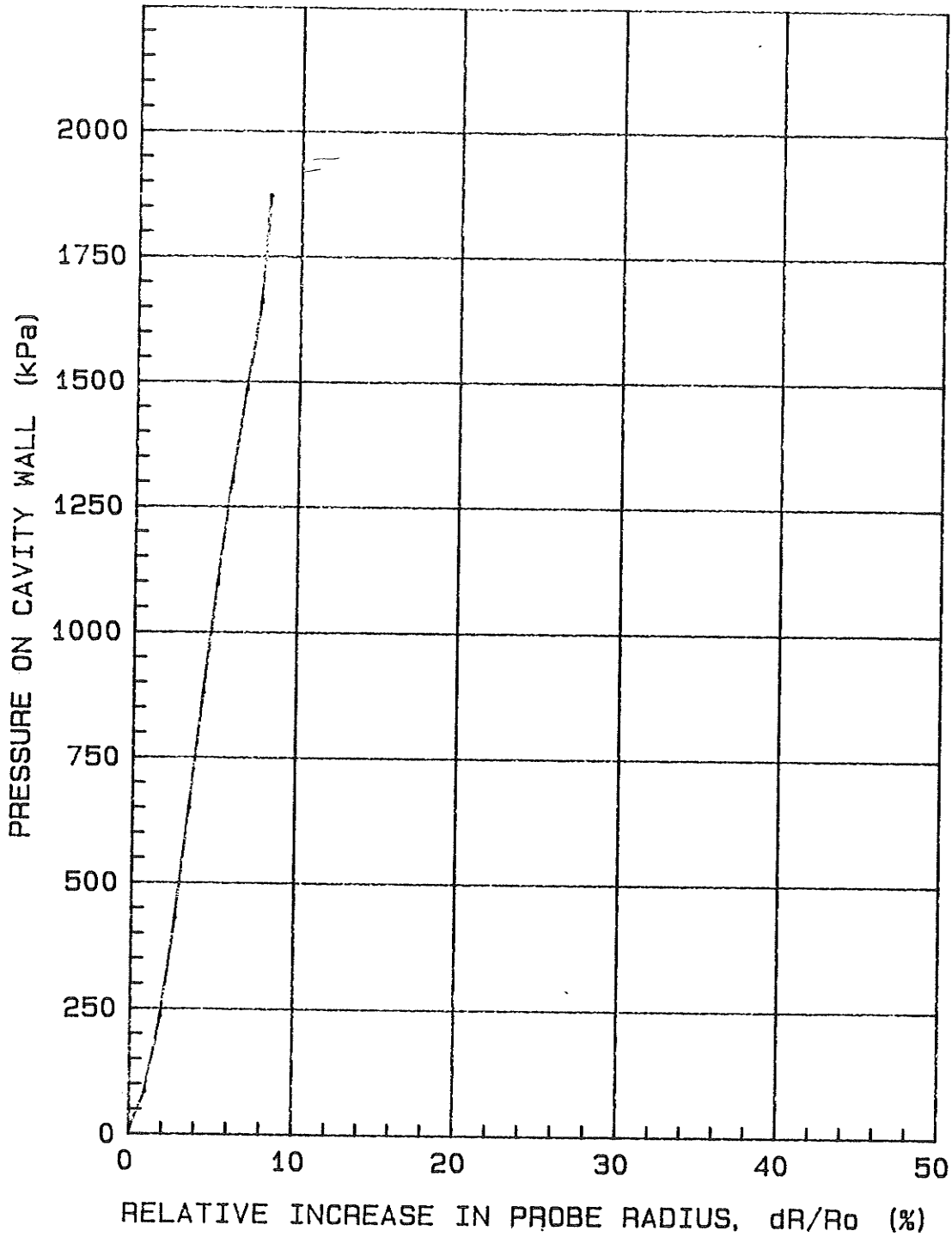
Eo = 37842 kPa

P1 = kPa

Er = kPa

P1\* = kPa

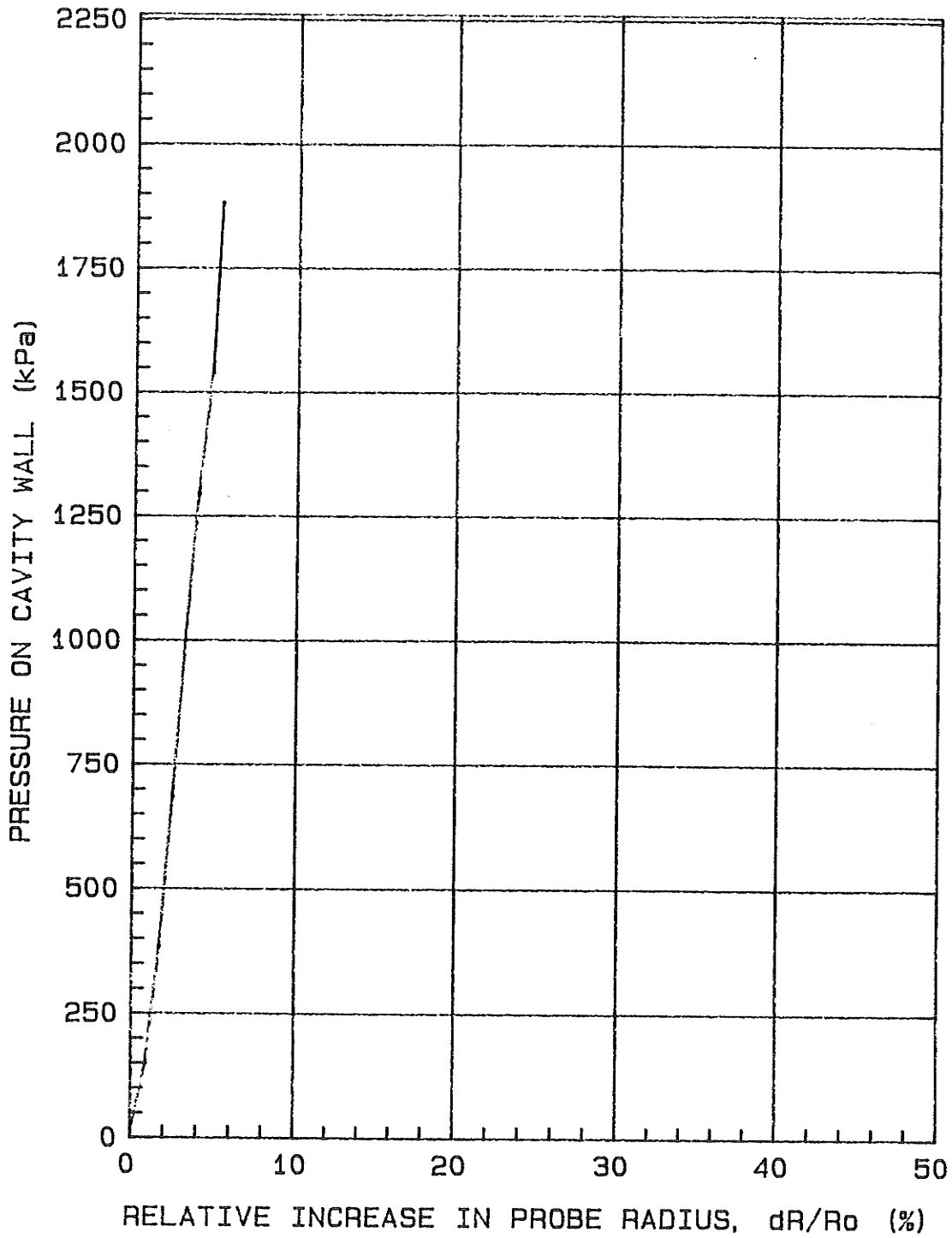
Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+750: 7.5mLt: Hole#10: 0.50m.

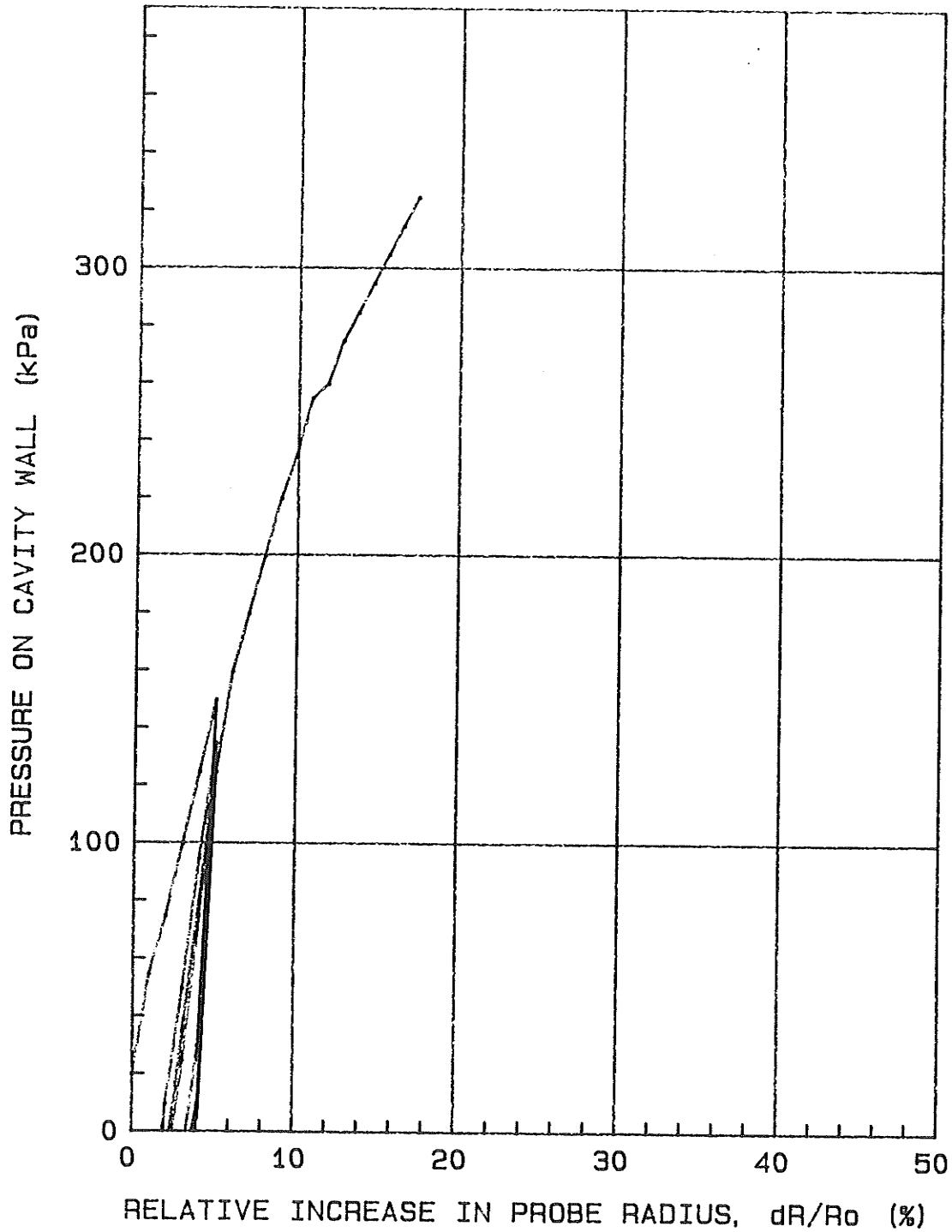


$P_0 = 10.5 \text{ kPa}$        $E_0 = 56328 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} = \quad \quad$



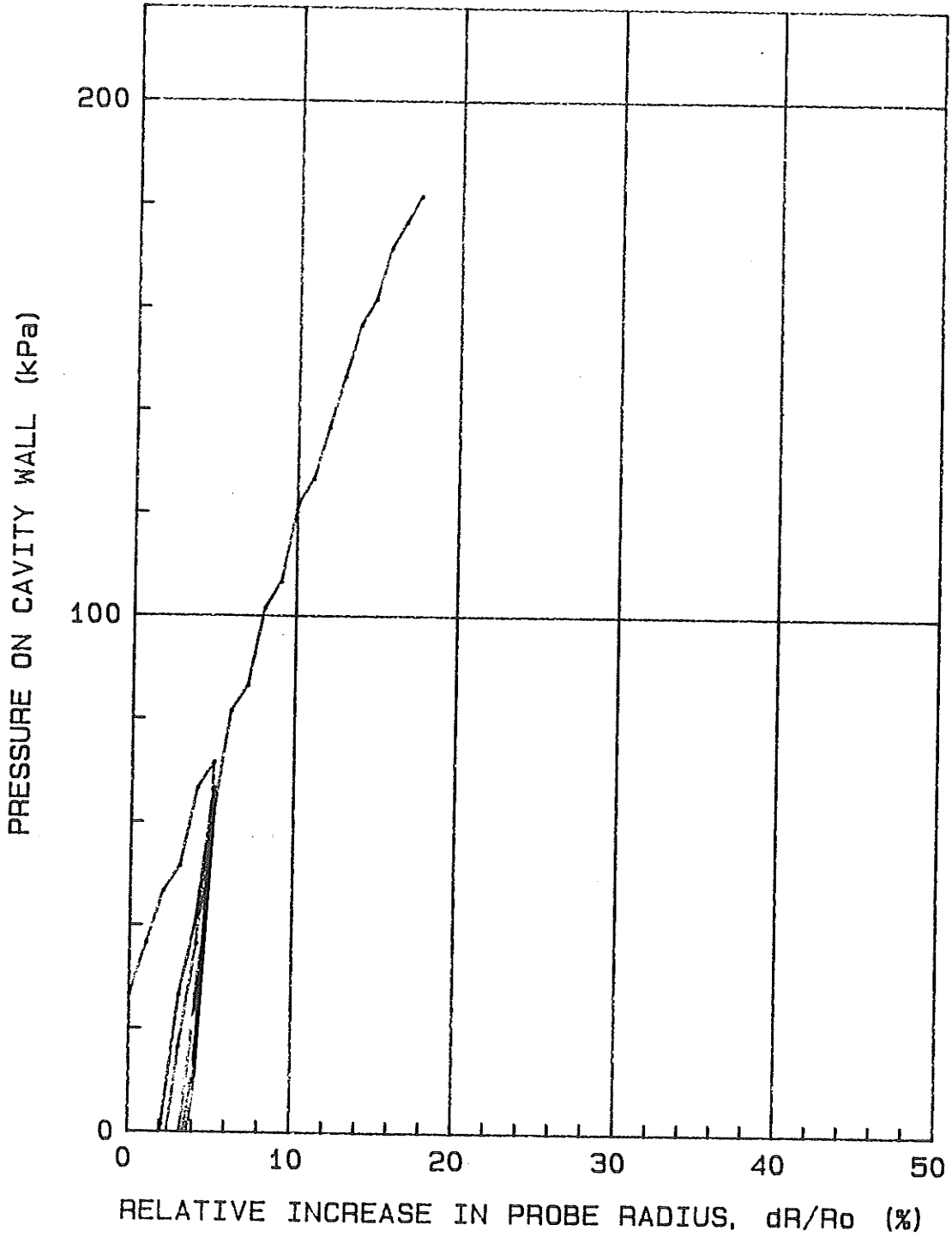
Saskatoon R/W15-33: Oct/88: 5+750: 7.5mLt: Hole#10: 1.00m.

Po = 15.7 kPa      Eo = 4610 kPa  
P1 = 400 kPa      Er = 6542 kPa  
P1\* = 384.3 kPa    Eo/P1\* = 11.9



Saskatoon R/W15-33: Oct/88: 5+750: 7.5mLt: Hole#10: 1.50m.

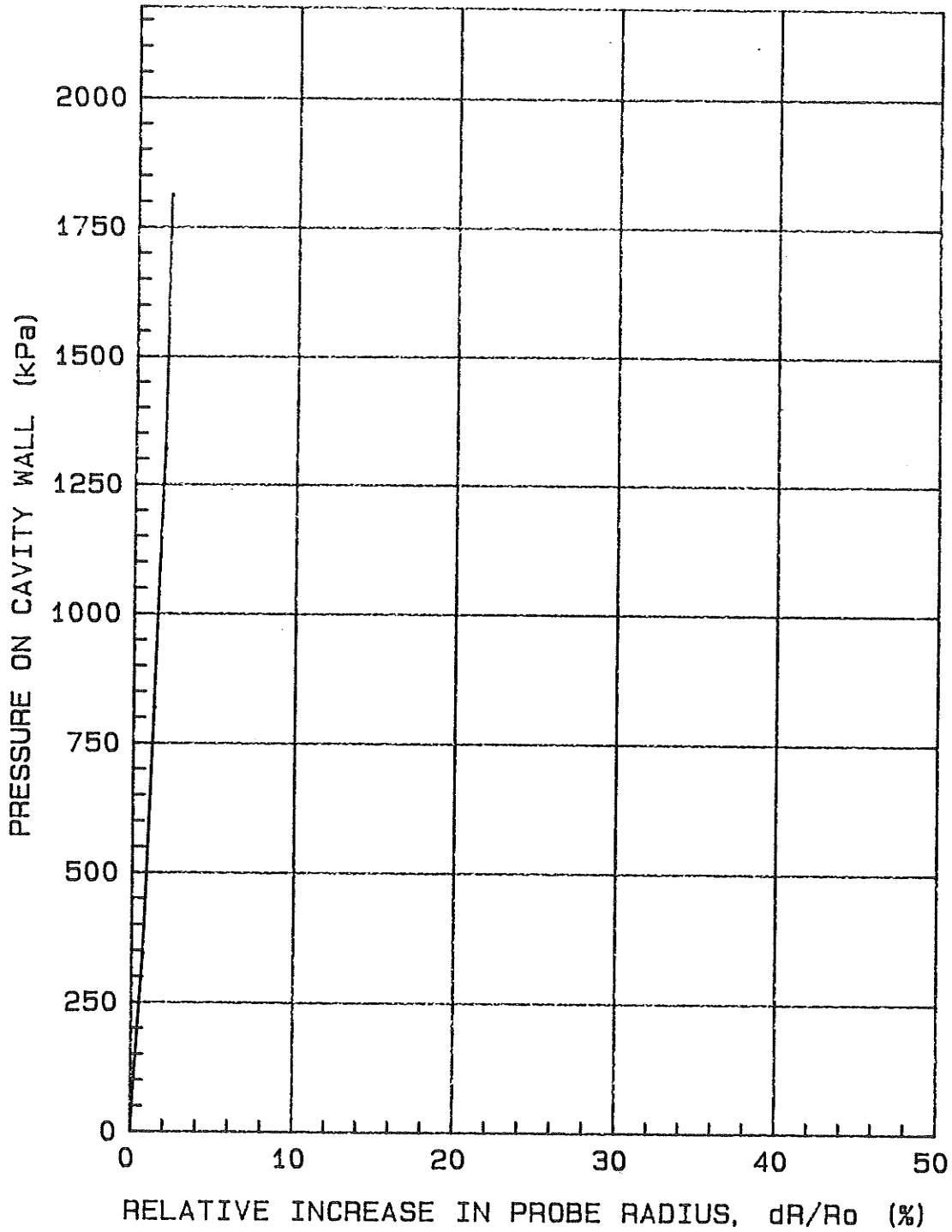
Po = 22.4 kPa      Eo = 1299 kPa  
P1 = 250 kPa      Er = 3199 kPa  
P1\* = 227.6 kPa    Eo/P1\* = 5.7



Saskatoon R/W15-33: Oct/88: 5+750: 7.5mLt: Hole#10: 2.20m.

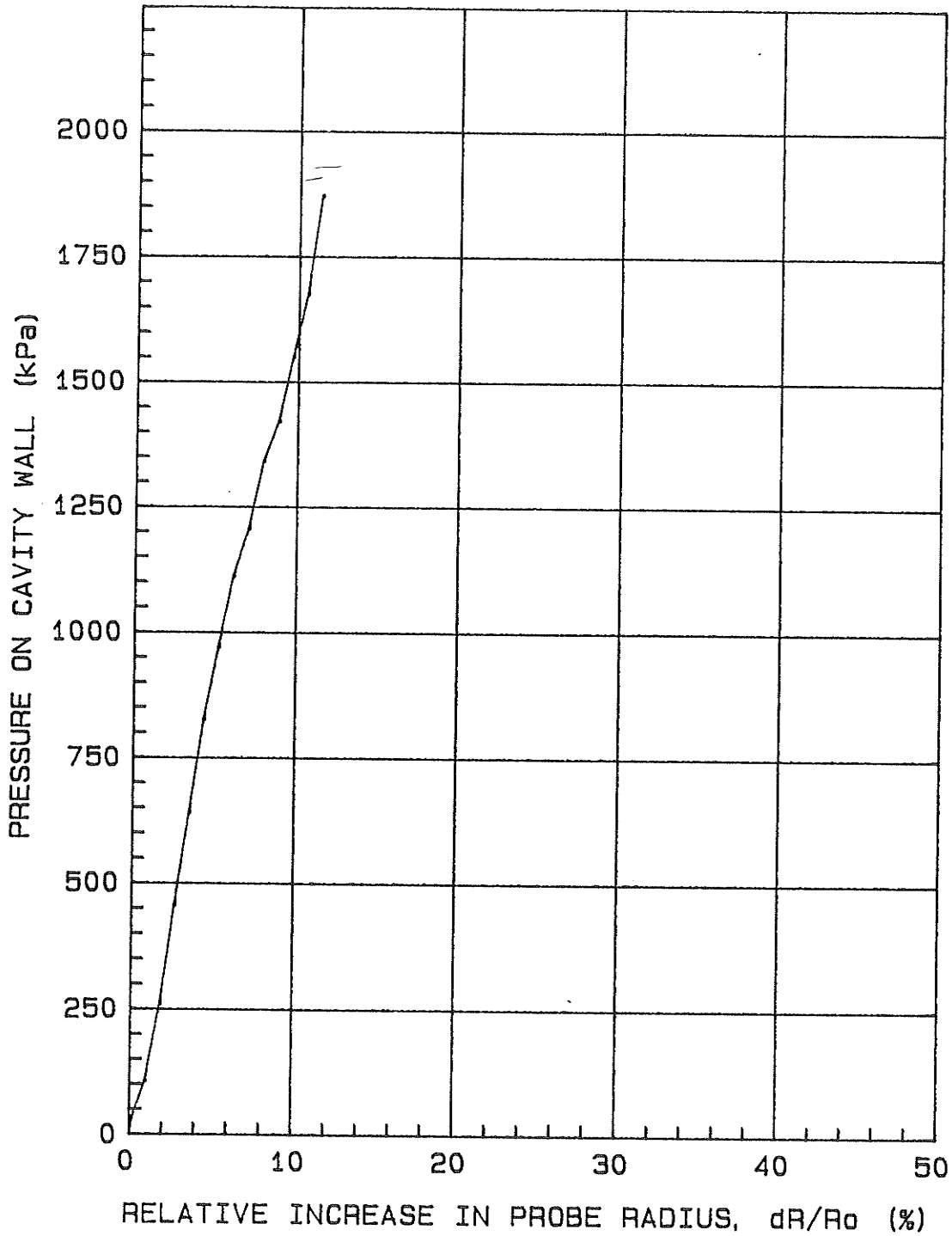
Po = 5.3 kPa  
P1 =           kPa  
P1\* =           kPa

Eo = 117594 kPa  
Er =           kPa  
Eo/P1\* =



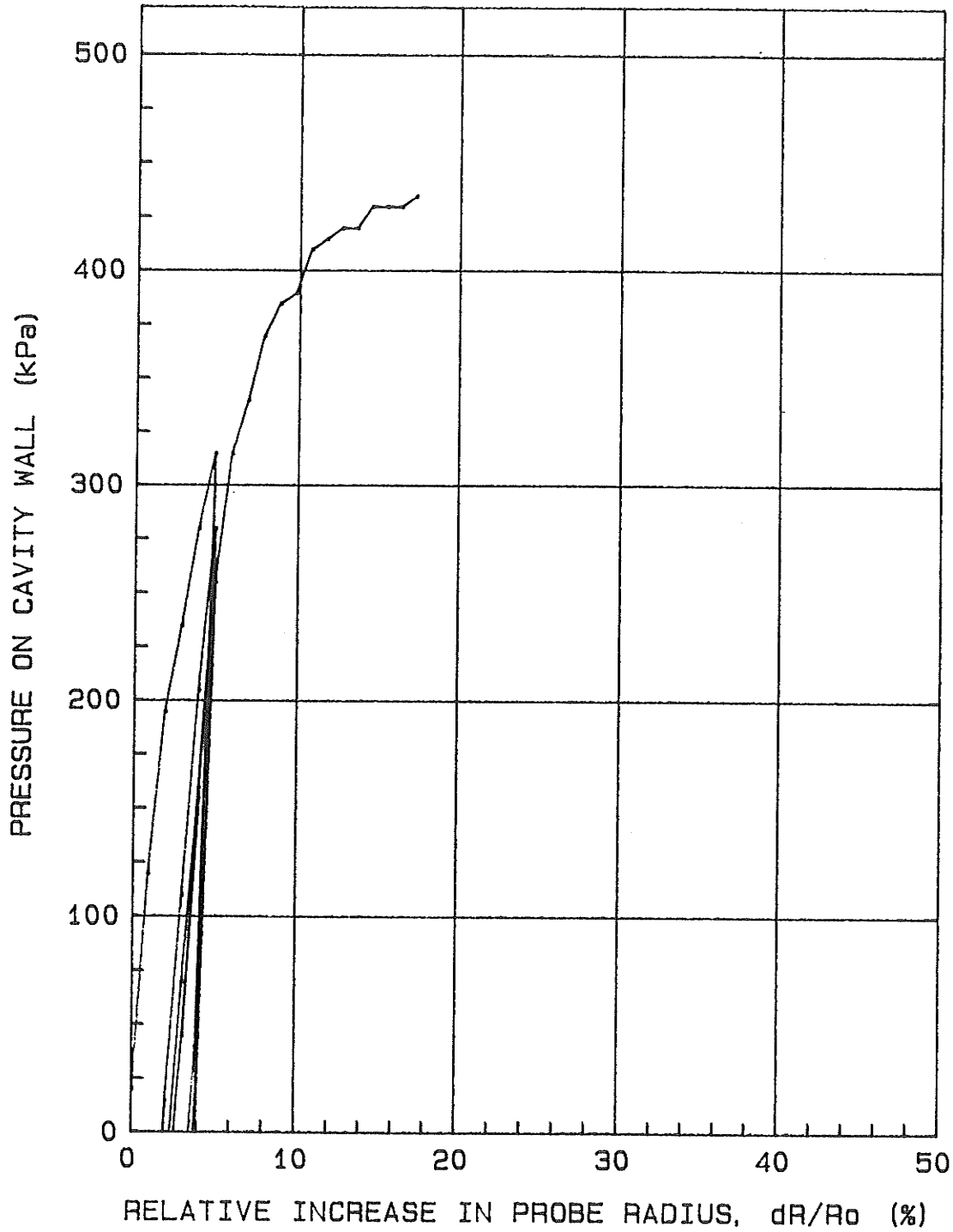
Saskatoon R/W15-33: Oct/88: 5+840: 3mRt: Hole#11: 0.50m.

Po = 11.5 kPa      Eo = 30495 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



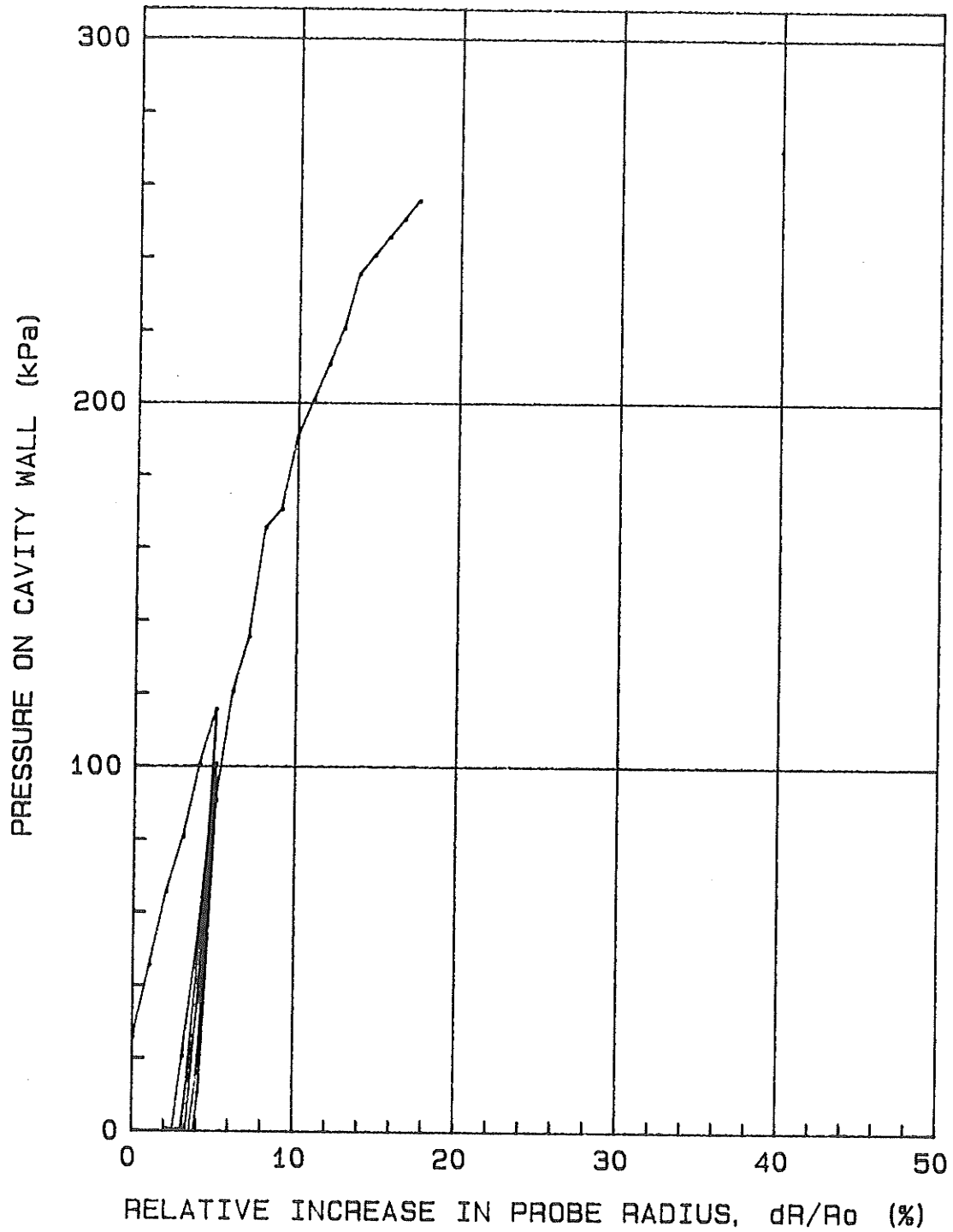
Saskatoon R/W15-33: Oct/88: 5+840: 3mRt: Hole#11: 1.10m.

Po = 14.9 kPa      Eo = 14070 kPa  
P1 = 420 kPa      Er = 15751 kPa  
P1\* = 405.1 kPa    Eo/P1\* = 34.7



Saskatoon R/W15-33: Oct/88: 5+840: 3mRt: Hole#11: 1.50m.

Po = 21.9 kPa      Eo = 2497 kPa  
P1 = 290 kPa      Er = 7105 kPa  
P1\* = 268.1 kPa    Eo/P1\* = 9.3



Saskatoon R/W15-33: Oct/88: 5+840: 3mRt: Hole#11: 2.10m.

Po = 5.3 kPa

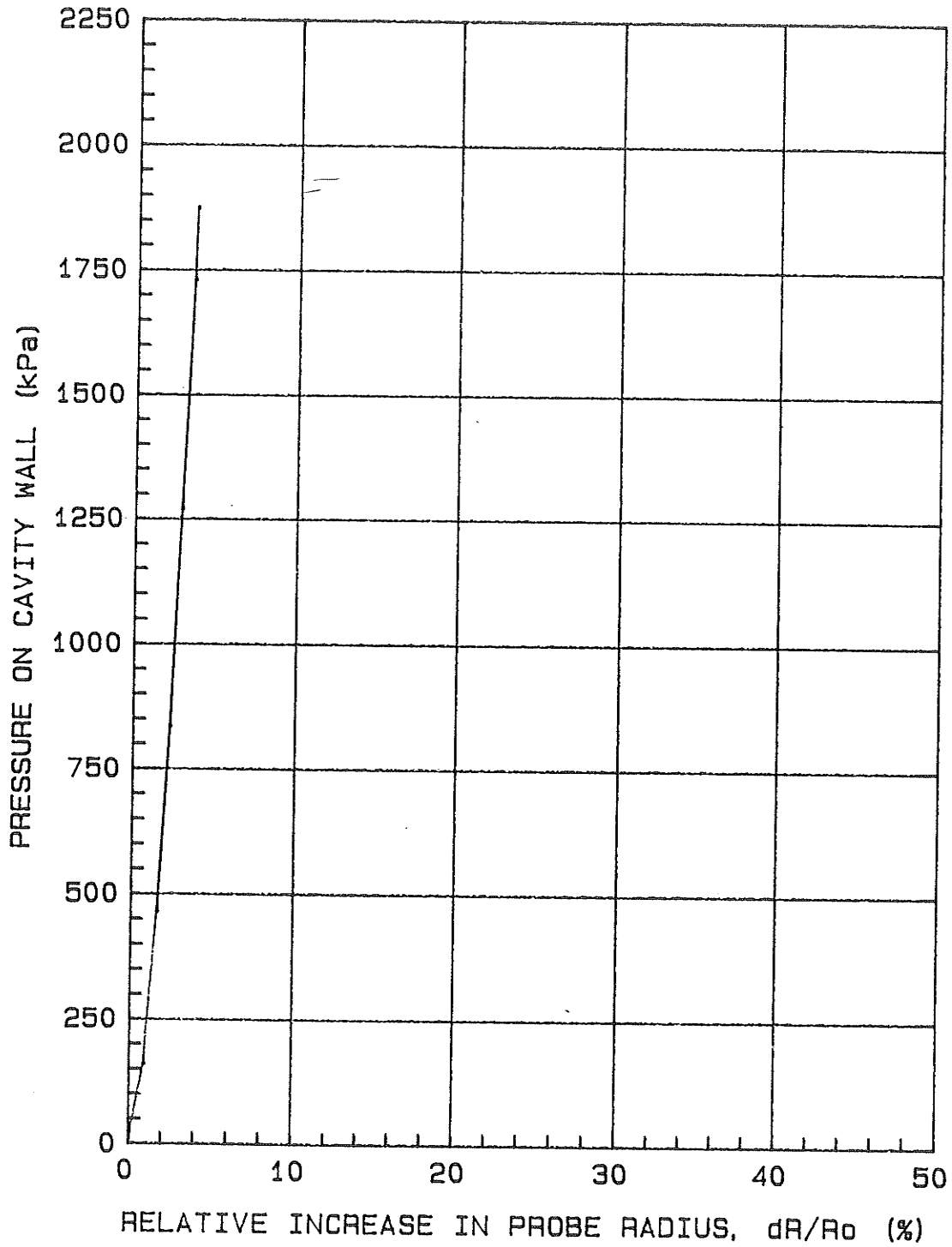
Eo = 99567 kPa

P1 = kPa

Er = kPa

P1\* = kPa

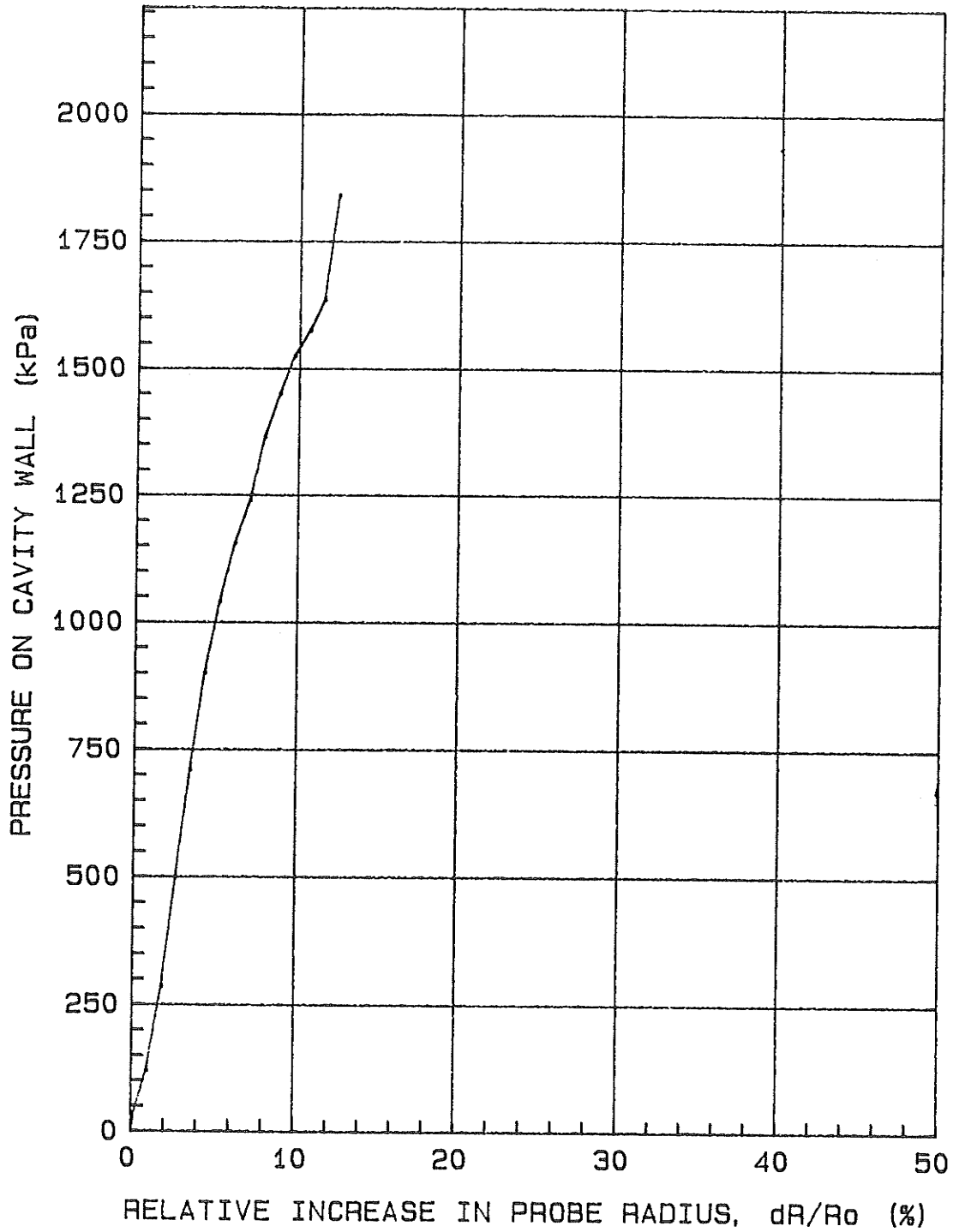
Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+930: 3mLt: Hole#12: 0.50m.

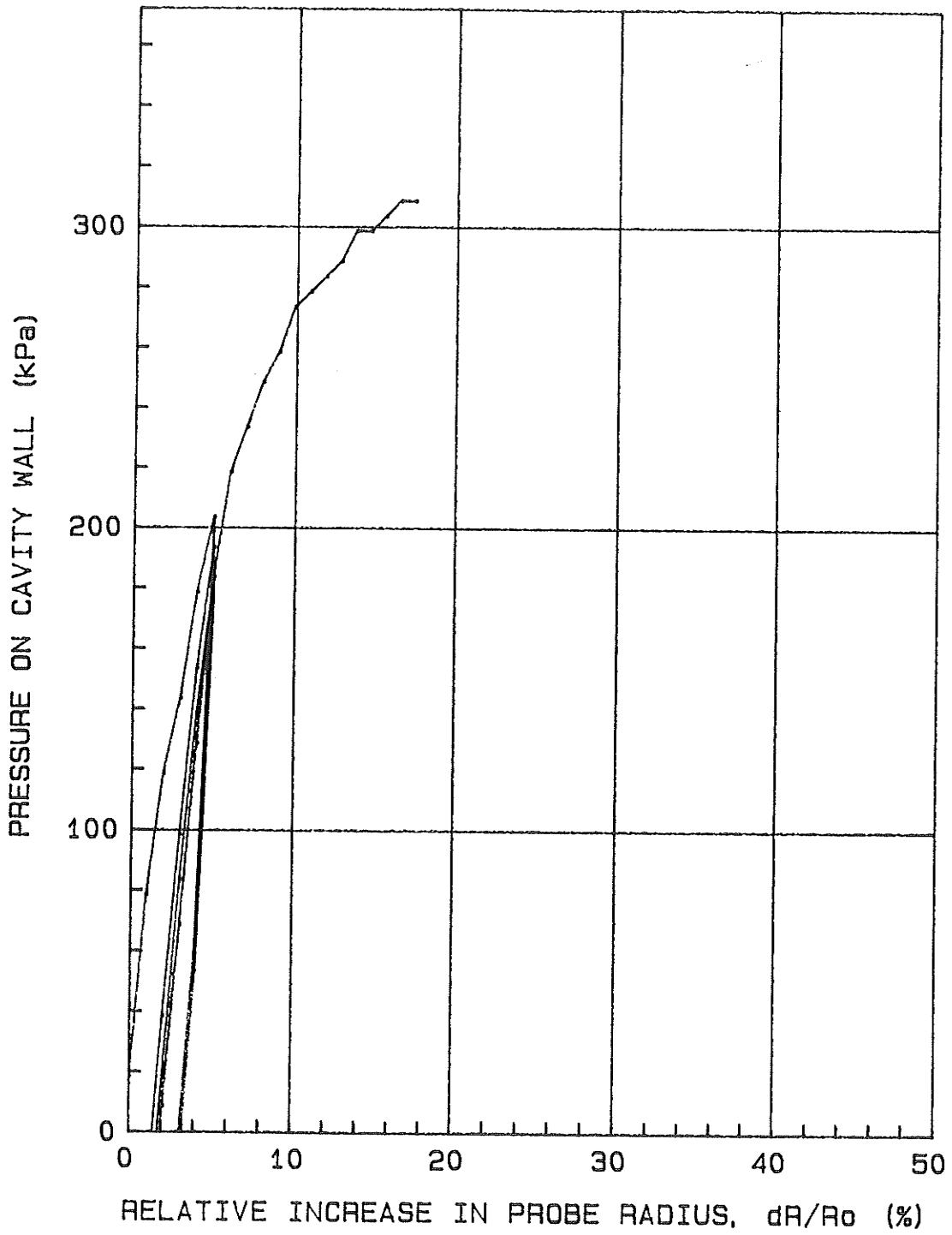


Po = 10.5 kPa      Eo = 35108 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



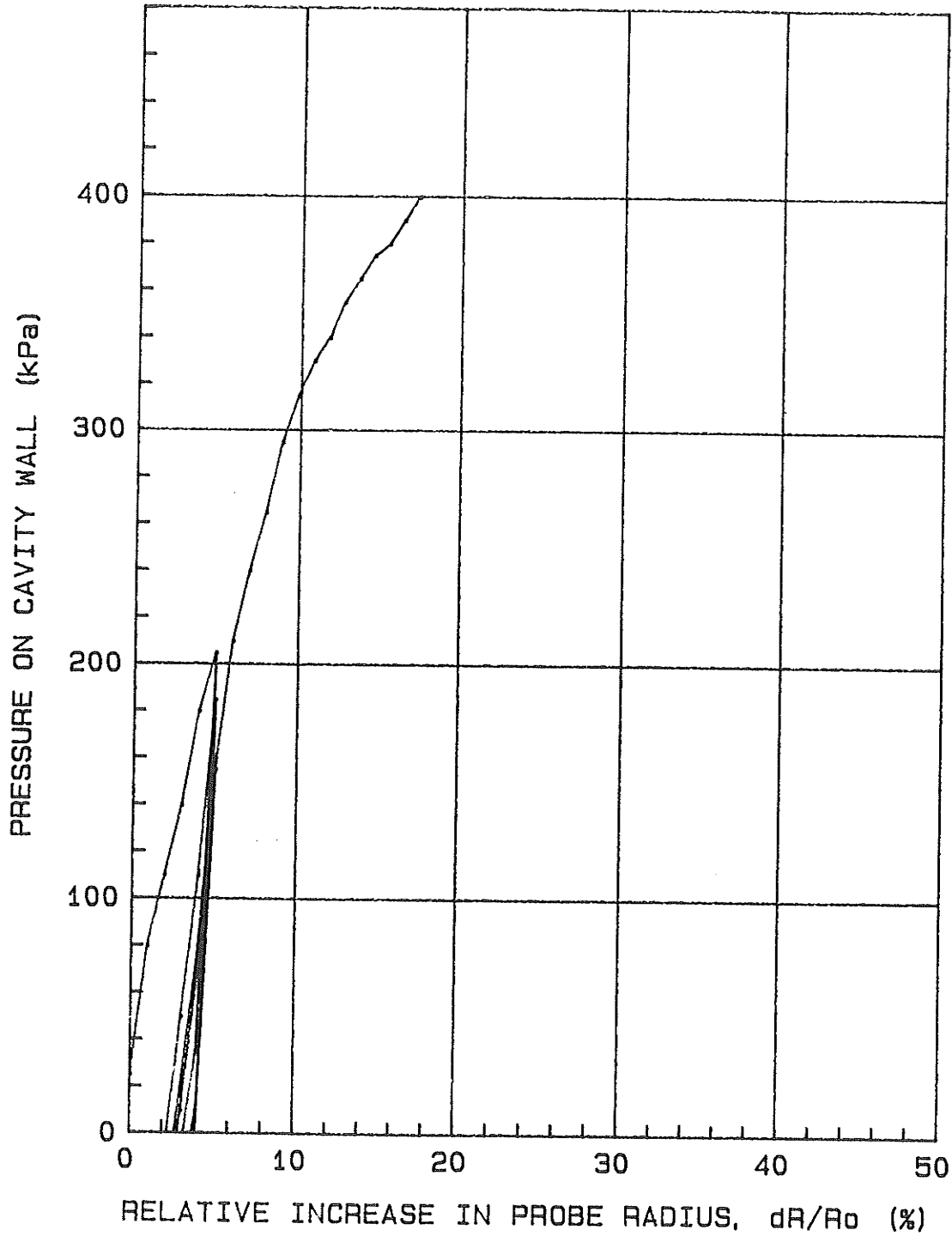
Saskatoon R/W15-33: Oct/88: 5+930: 3mLt: Hole#12: 1.00m.

Po = 15.1 kPa      Eo = 8102 kPa  
P1 = 300 kPa      Er = 8281 kPa  
P1\* = 284.9 kPa    Eo/P1\* = 28.4



Saskatoon R/W15-33: Oct/88: 5+930: 3mLt: Hole#12: 1.40m.

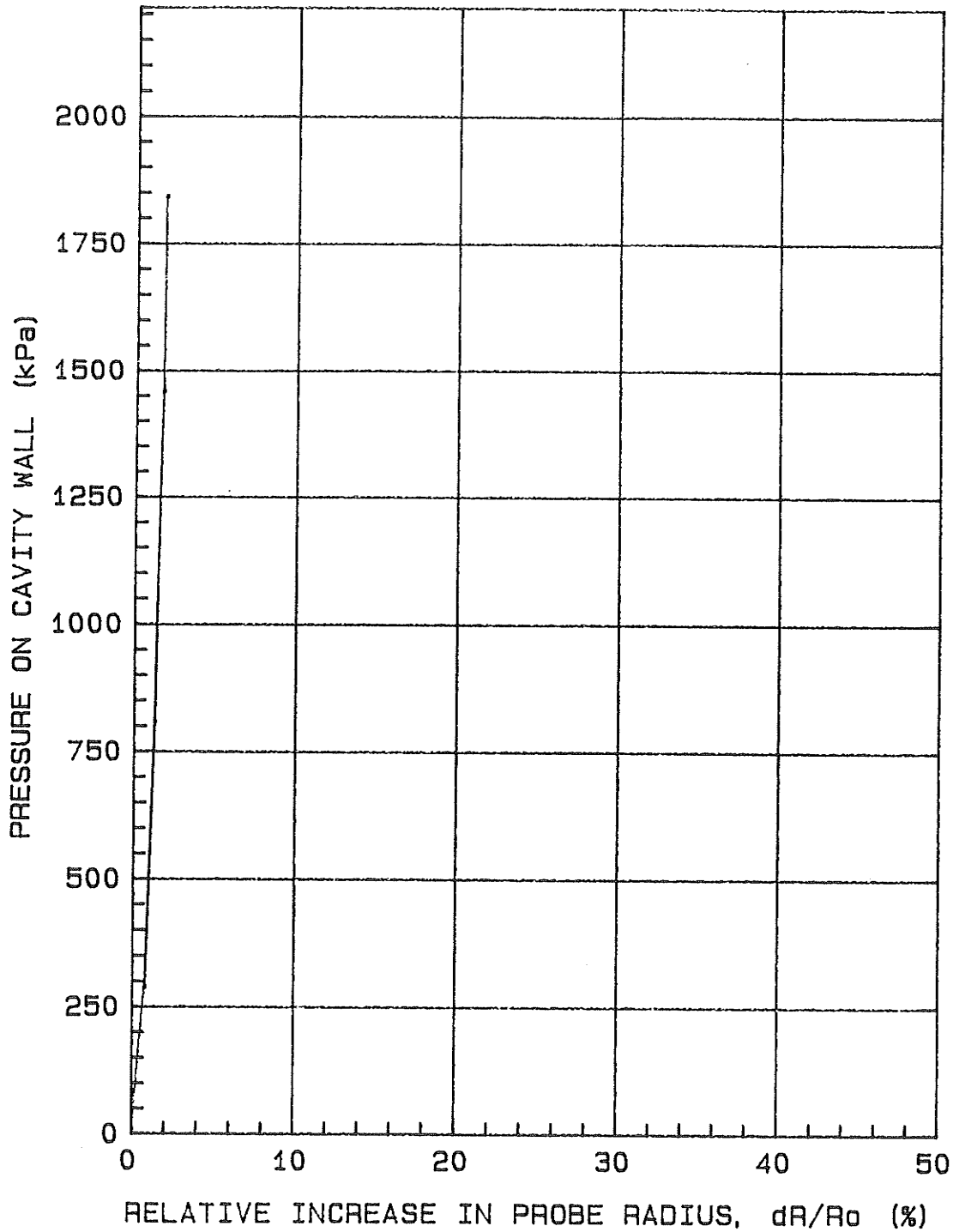
Po = 20.9 kPa      Eo = 7390 kPa  
P1 = 450 kPa      Er = 10530 kPa  
P1\* = 429.1 kPa    Eo/P1\* = 17.2



Saskatoon R/W15-33: Oct/88: 5+930: 3mLt: Hole#12: 2.00m.

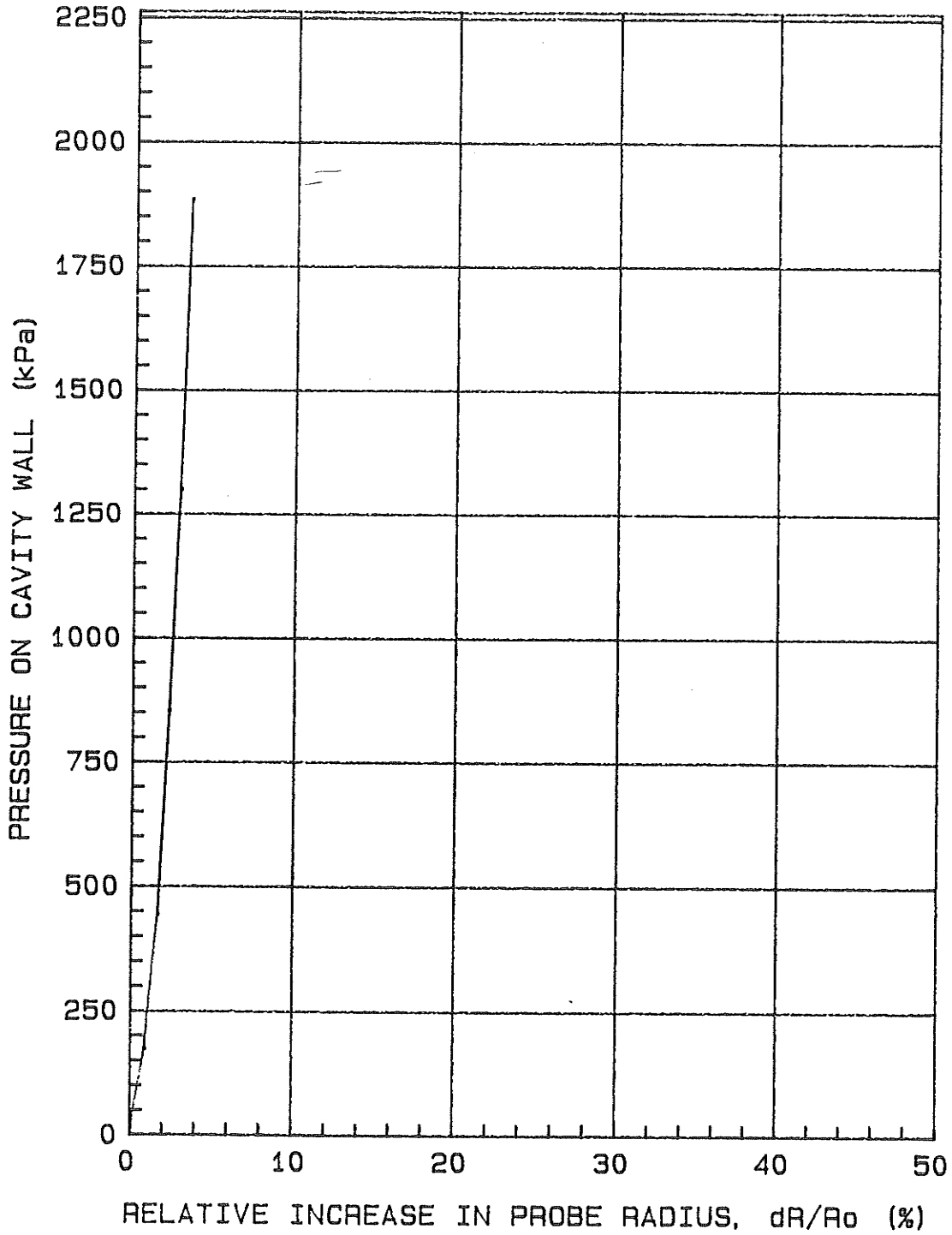
Po = 4.2 kPa  
P1 =            kPa  
P1\* =           kPa

Eo = 220460 kPa  
Er =            kPa  
Eo/P1\* =



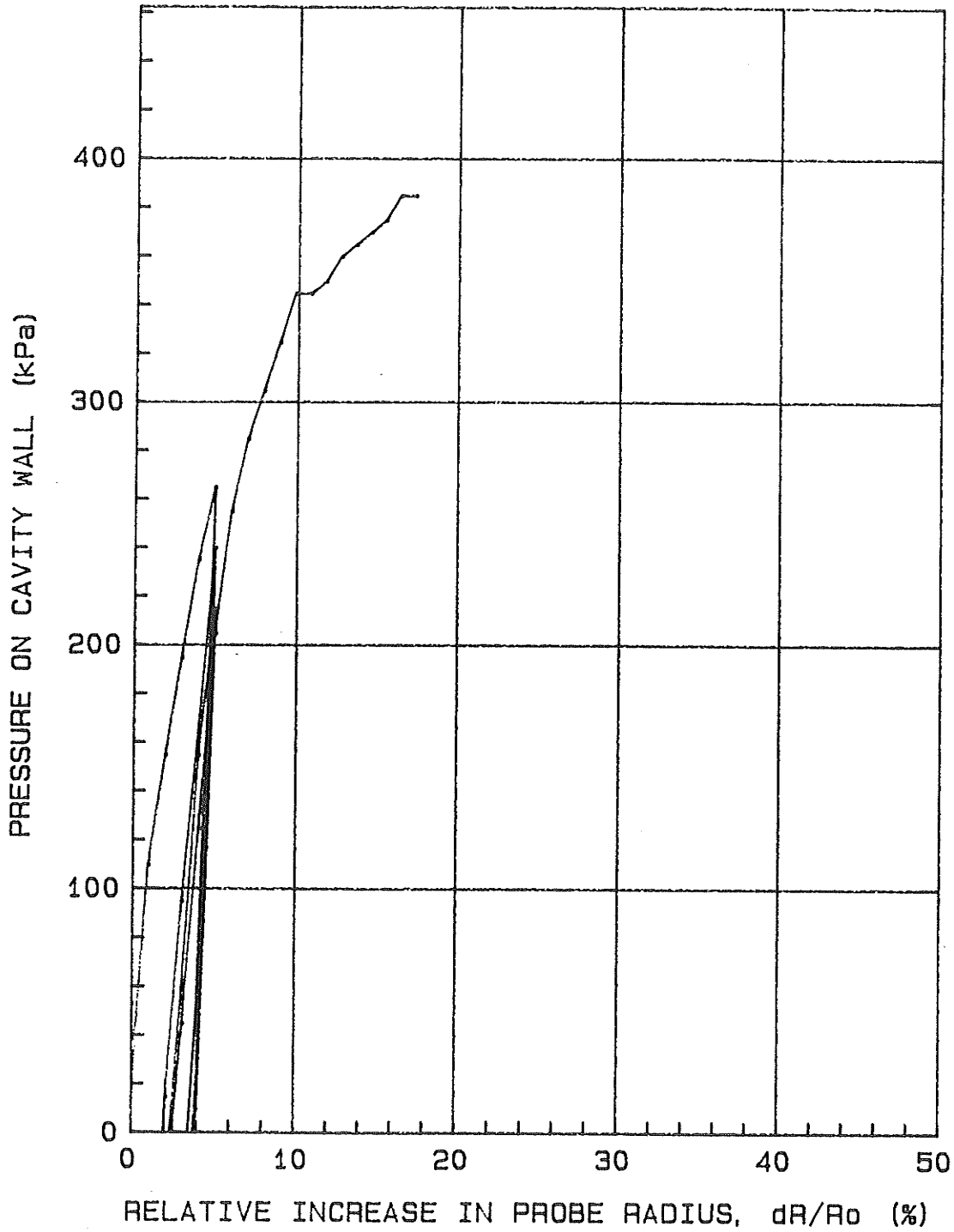
Saskatoon R/W15-33: Oct/88: 6+020: 3mRt: Hole#13: 0.40m.

Po = 9.399999 kPa Eo = 94244 kPa  
P1 = kPa Er = kPa  
P1\* = kPa Eo/P1\* =



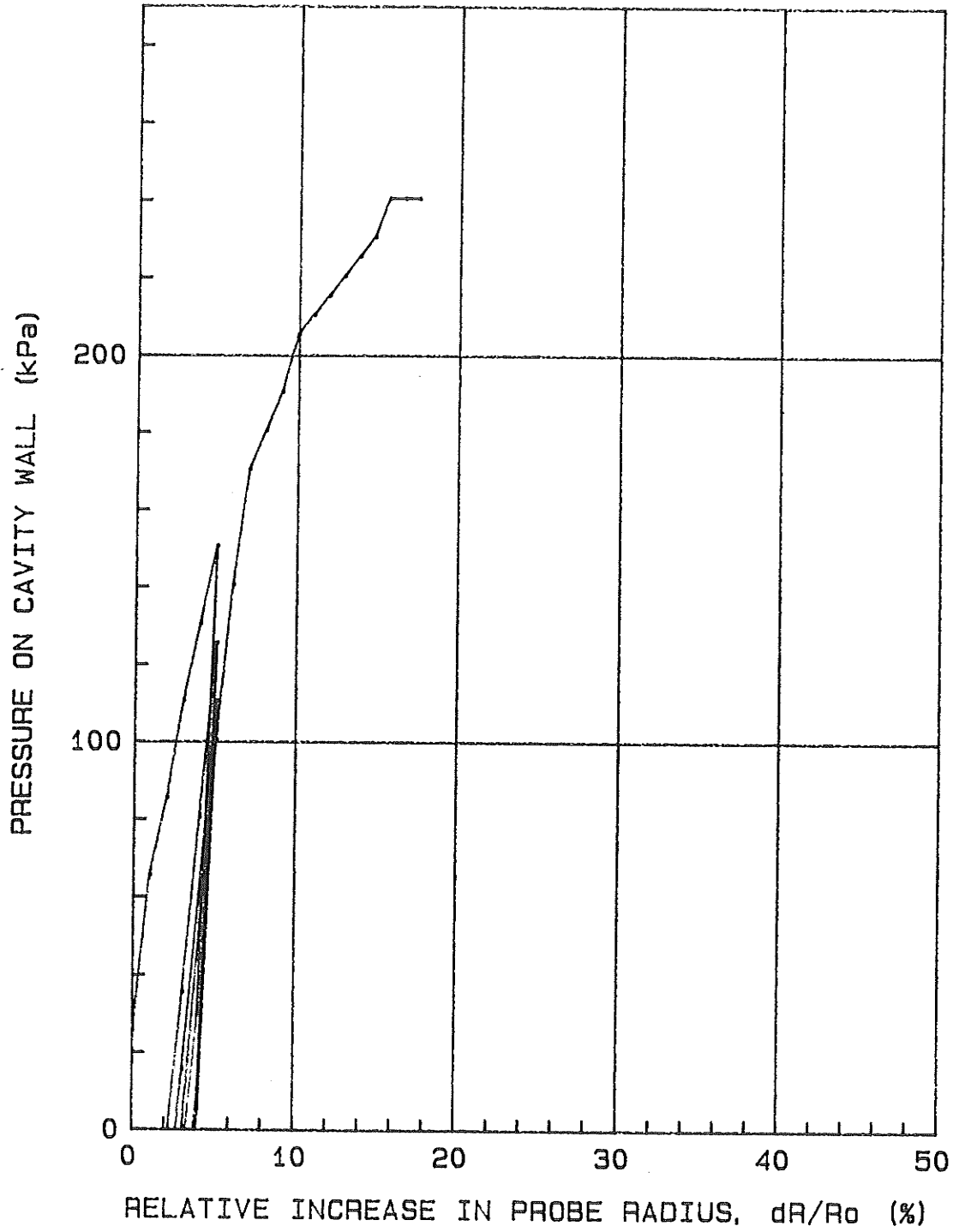
Saskatoon R/W15-33: Oct/88: 6+020: 3mRt: Hole#13: 0.90m.

Po = 15.7 kPa      Eo = 12531 kPa  
P1 = 345 kPa      Er = 11699 kPa  
P1\* = 329.3 kPa    Eo/P1\* = 38



Saskatoon R/W15-33: Oct/88: 6+020: 3mRt: Hole#13: 1.50m.

Po = 21.9 kPa      Eo = 5295 kPa  
P1 = 240 kPa      Er = 6671 kPa  
P1\* = 218.1 kPa    Eo/P1\* = 24.2



Saskatoon R/W15-33: Oct/88: 6+020: 3mRt: Hole#13: 2.10m.

Po = 5.3 kPa

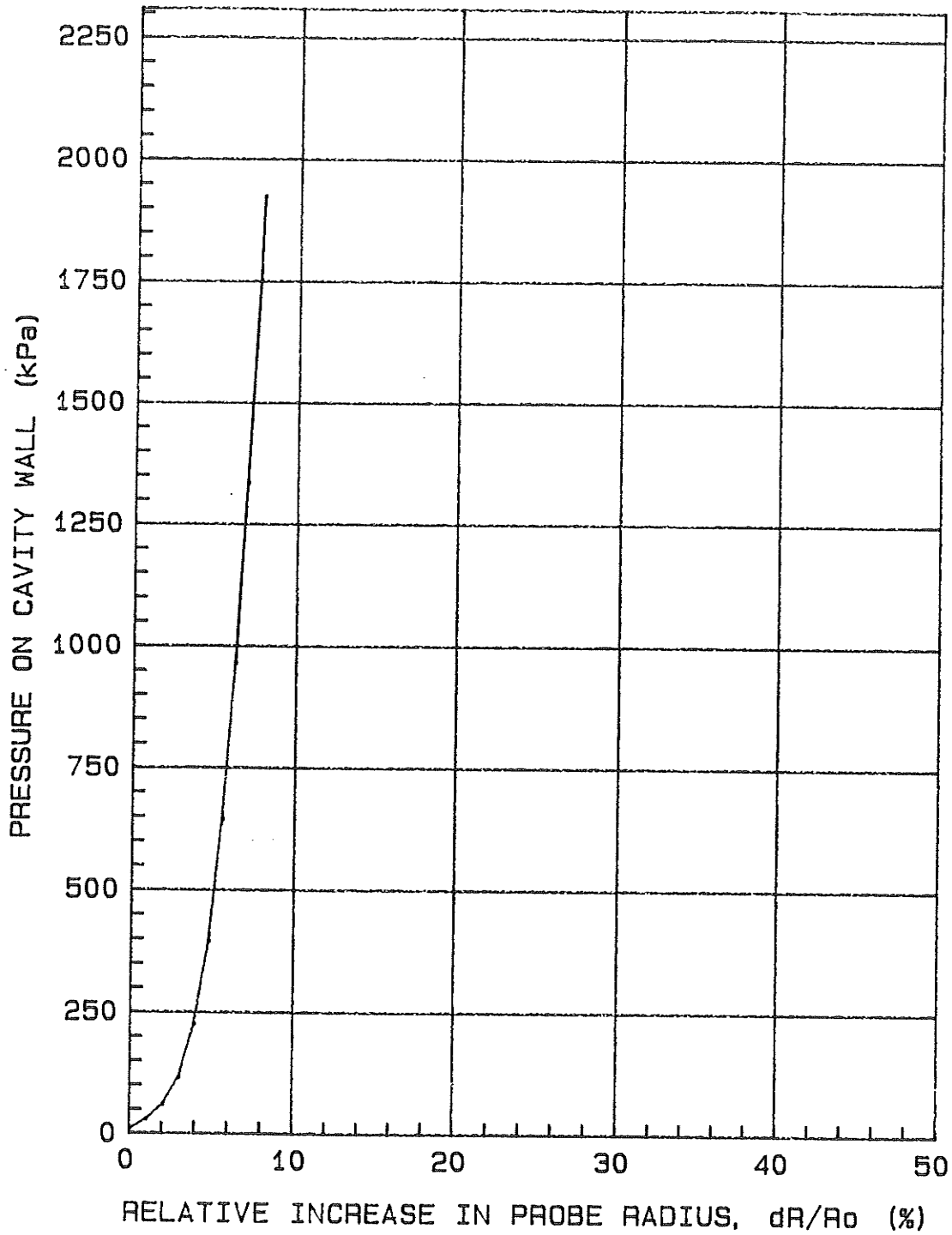
Eo = 91079 kPa

P1 = kPa

Er = kPa

P1\* = kPa

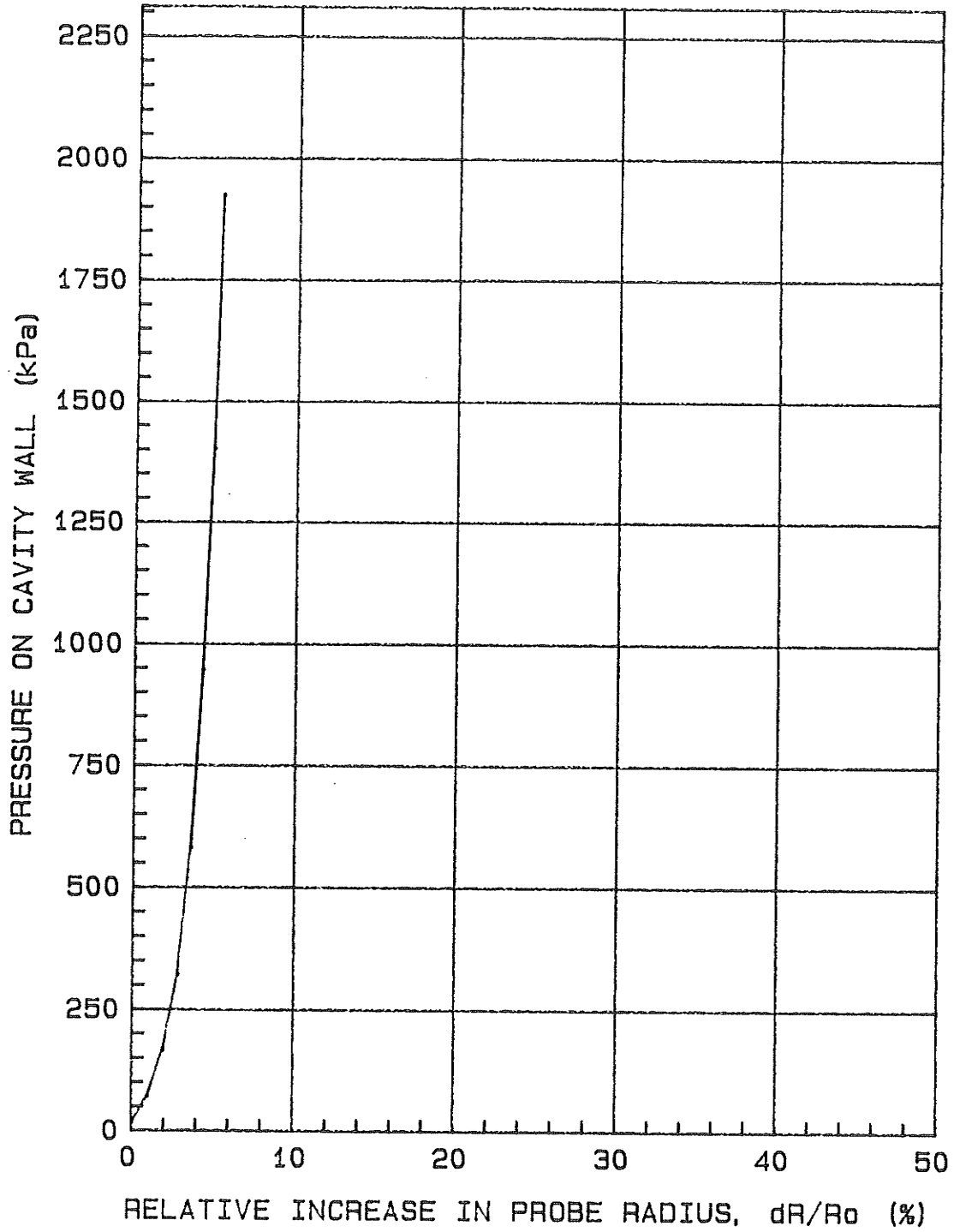
Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 6+140: 3mLt: Hole#14: 0.50m.

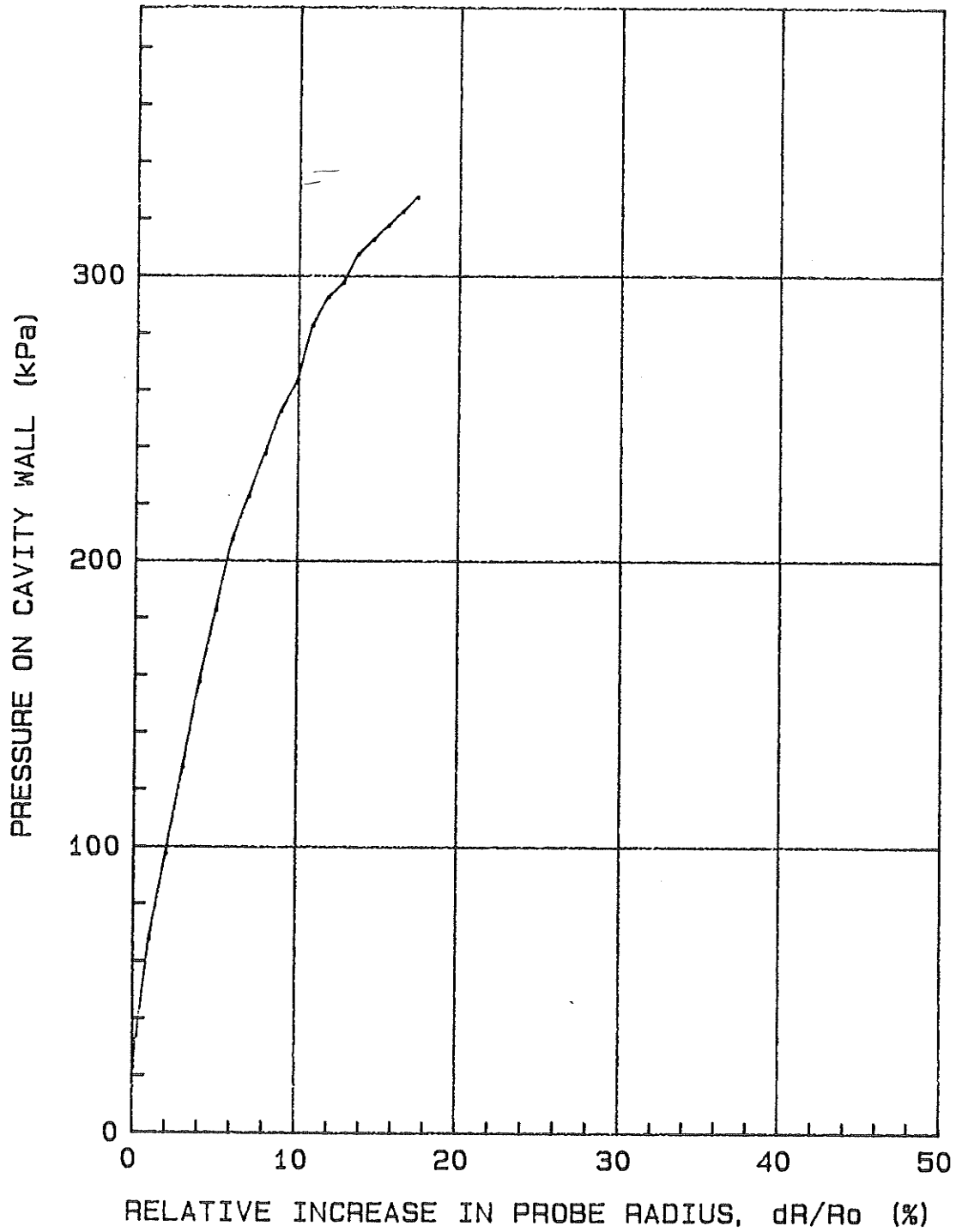


Po = 12.6 kPa      Eo = 109194 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



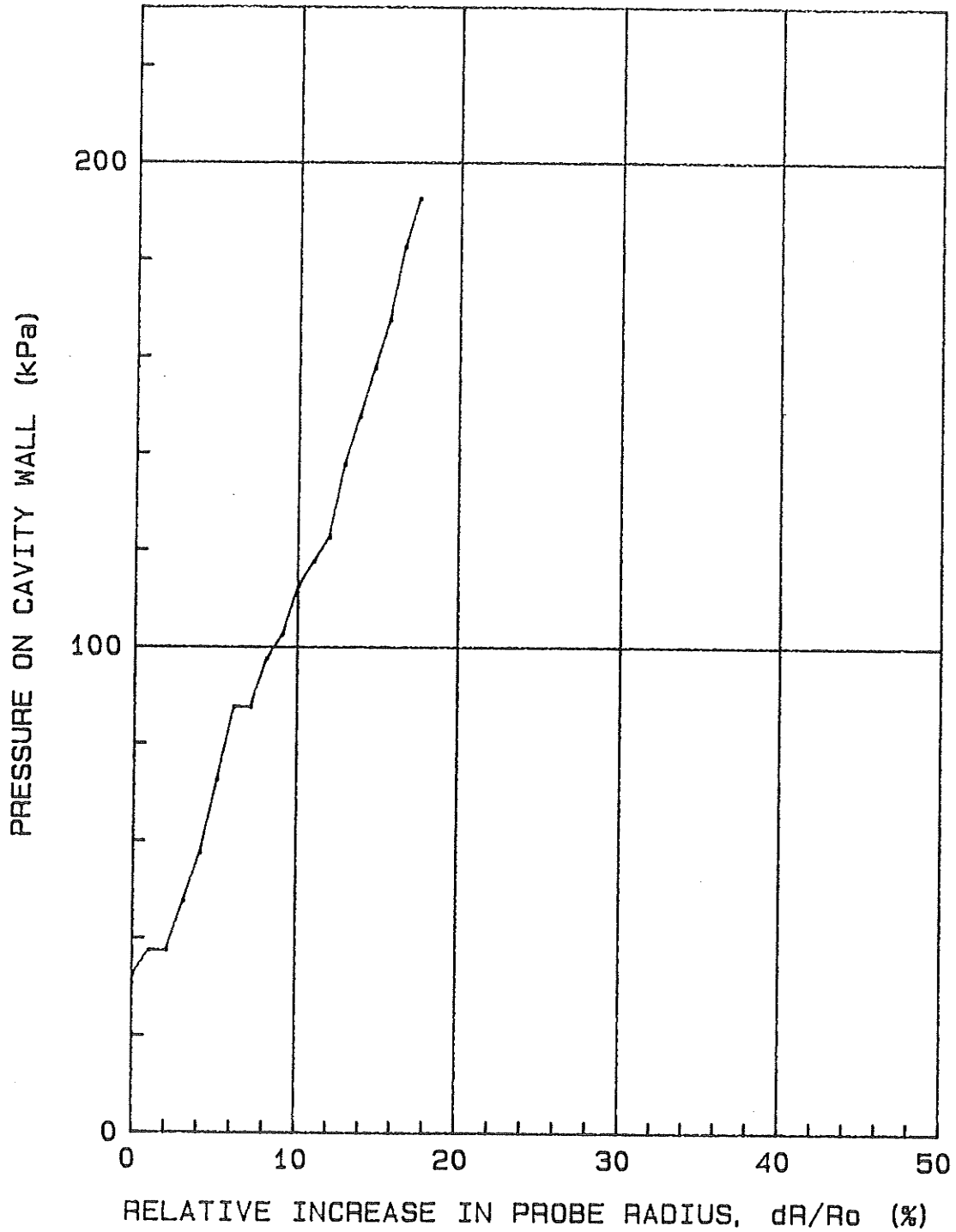
Saskatoon R/W15-33: Oct/88: 6+140: 3mLt: Hole#14: 1.20m.

Po = 17.8 kPa      Eo = 5986 kPa  
P1 = 350 kPa      Er =            kPa  
P1\* = 332.2 kPa    Eo/P1\* = 18



Saskatoon R/W15-33: Oct/88: 6+140: 3mLt: Hole#14: 1.80m.

$P_0 = 29.3 \text{ kPa}$        $E_0 = 639 \text{ kPa}$   
 $P_1 = 40 \text{ kPa}$          $E_r = \quad \text{kPa}$   
 $P_1^* = 10.7 \text{ kPa}$        $E_0/P_1^* = 59.7$



Saskatoon R/W15-33: Oct/88: 6+140: 3mLt: Hole#14: 2.80m.

Po = 5.3 kPa

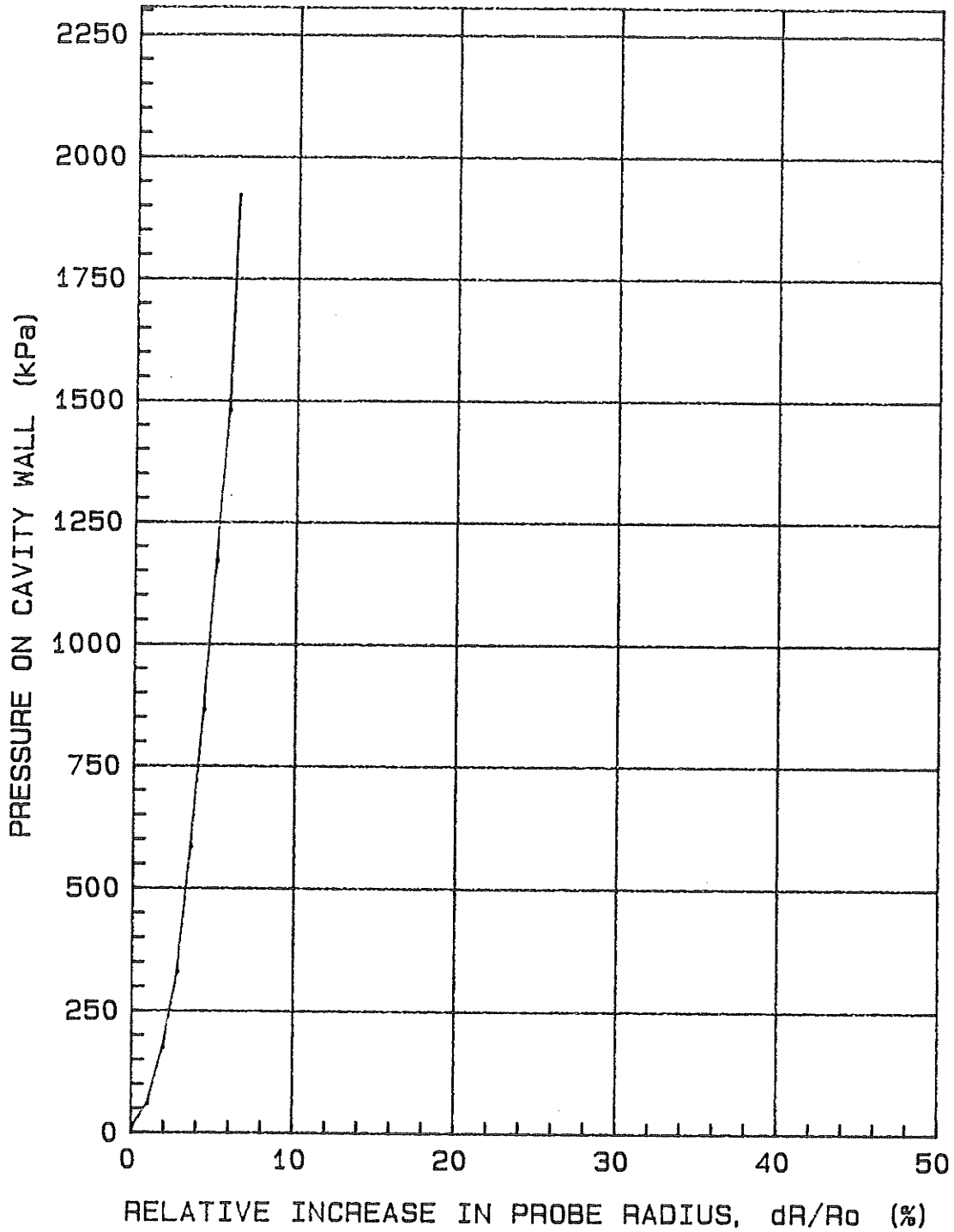
Eo = 57038 kPa

P1 = kPa

Er = kPa

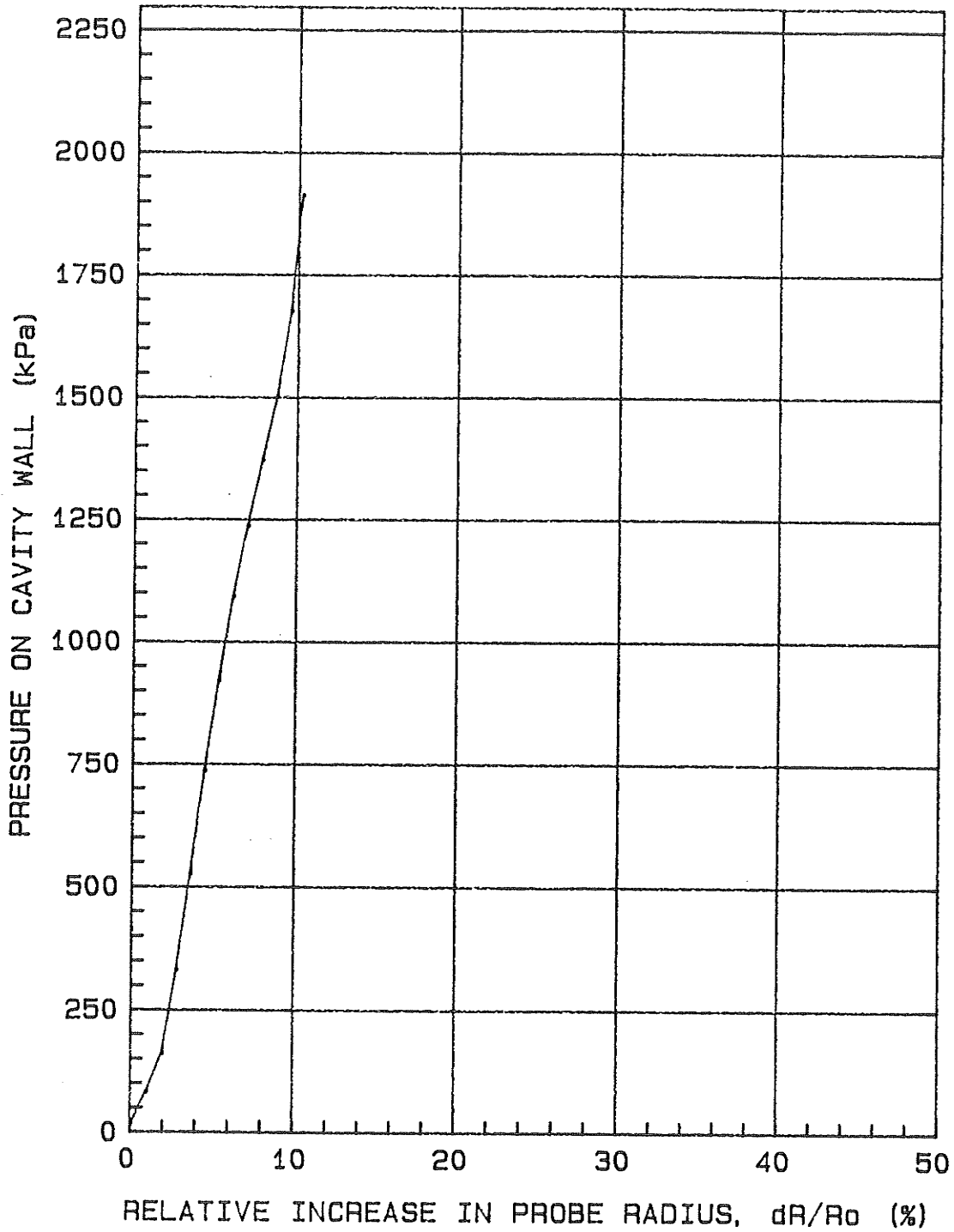
P1\* = kPa

Eo/P1\* =



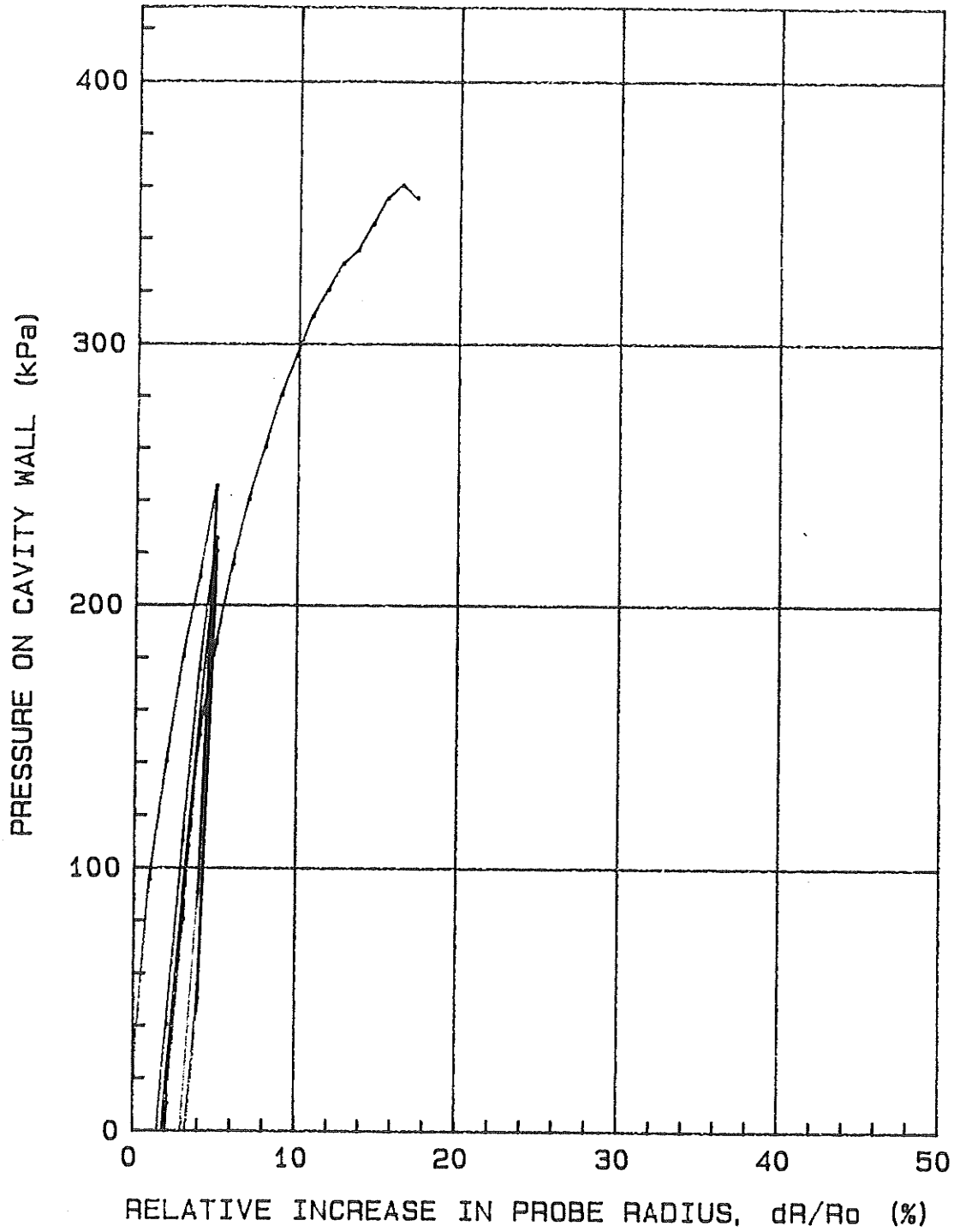
Saskatoon R/W15-33: Oct/88: 6+260: 3mLt: Hole#15: 0.50m.

$P_0 = 12.6 \text{ kPa}$        $E_0 = 31120 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



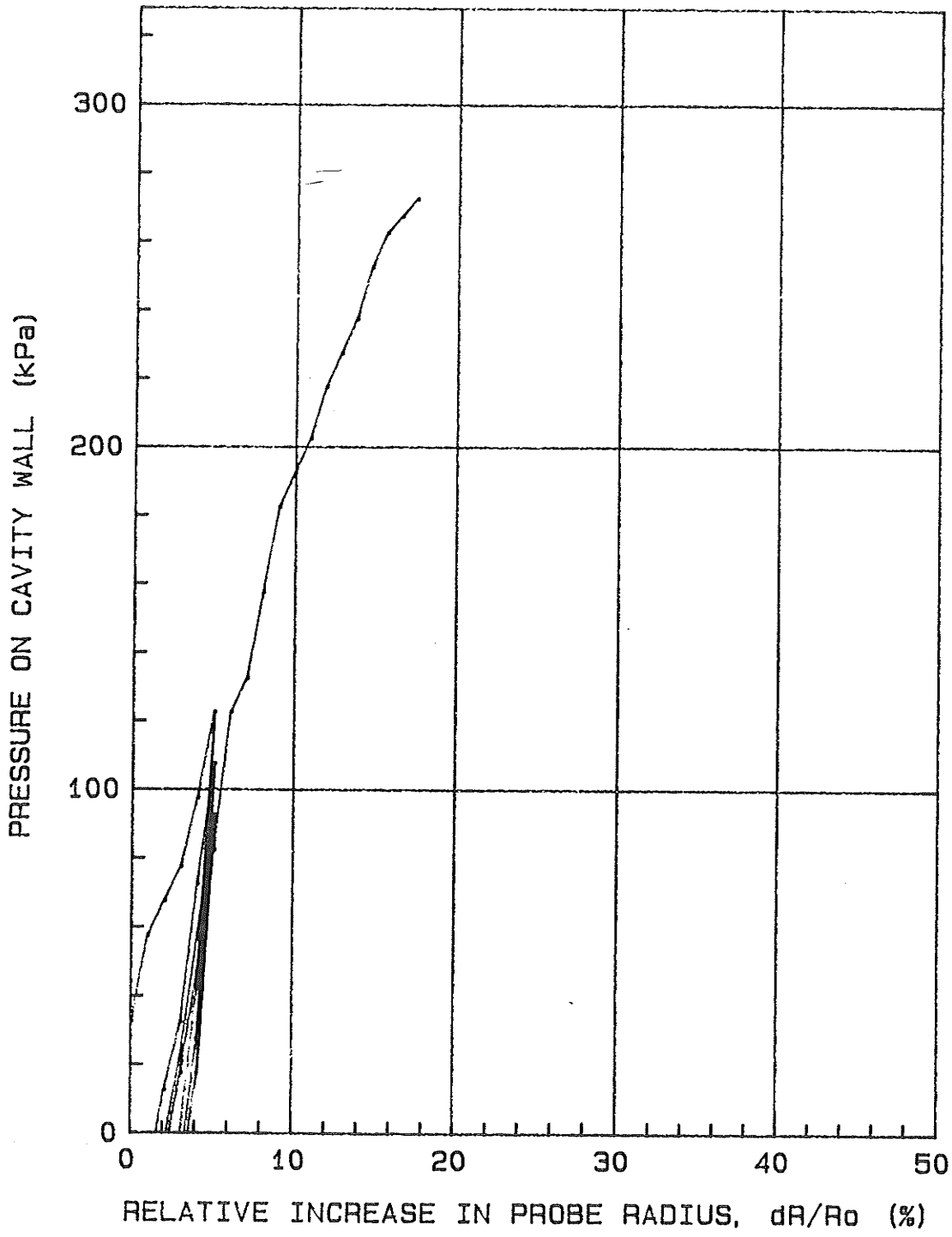
Saskatoon R/W15-33: Oct/88: 6+260: 3mLt: Hole#15: 1.20m.

Po = 15.8 kPa      Eo = 10283 kPa  
P1 = 360 kPa      Er = 9967 kPa  
P1\* = 344.2 kPa    Eo/P1\* = 29.8



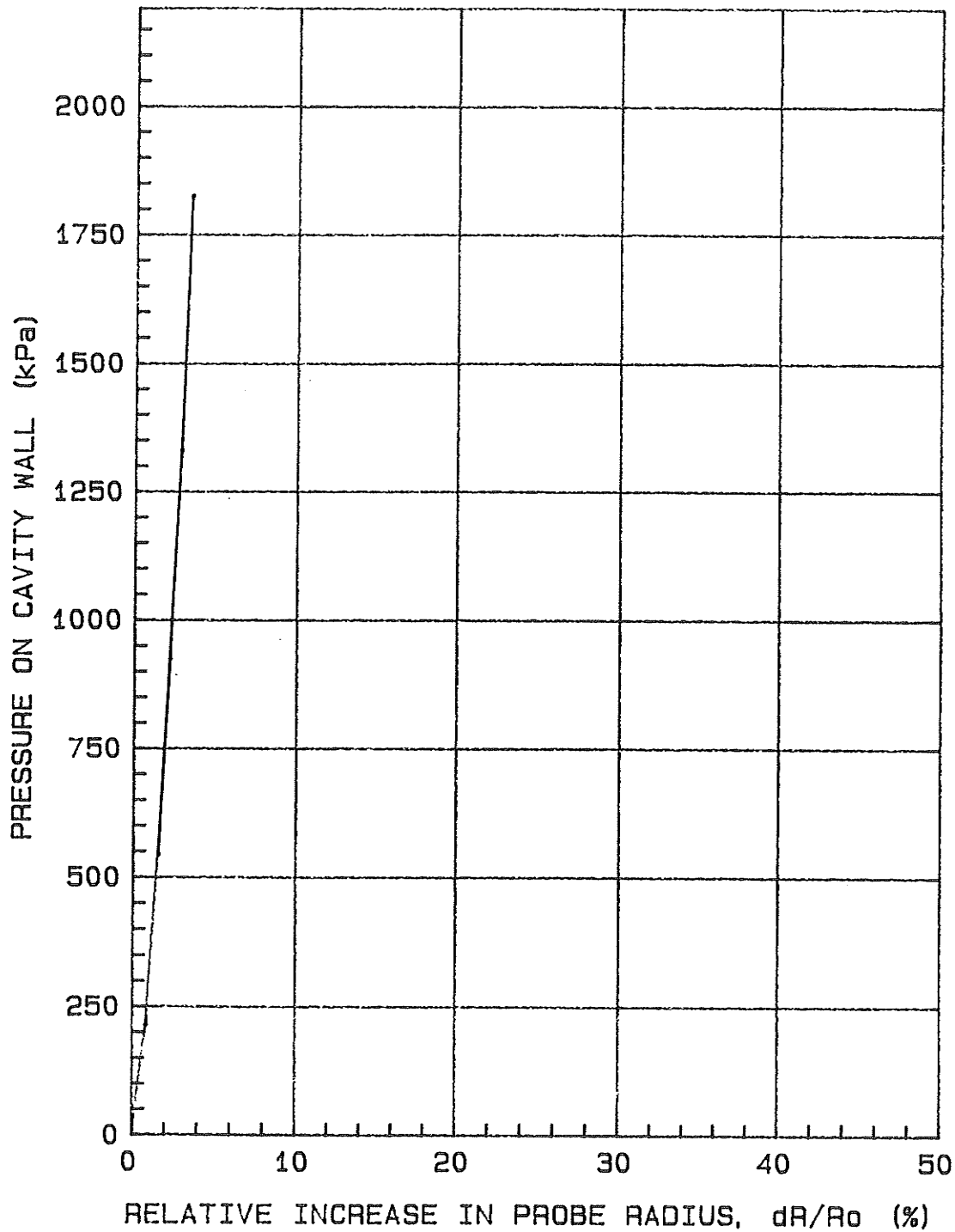
Saskatoon R/W15-33: Oct/88: 6+260: 3mLt: Hole#15: 1.60m.

Po = 30.2 kPa      Eo = 3261 kPa  
P1 = 290 kPa      Er = 4533 kPa  
P1\* = 259.8 kPa    Eo/P1\* = 12.5



Saskatoon R/W15-33: Oct/88: 6+260: 3mLt: Hole#15: 2.80m.

Po = 5.3 kPa      Eo = 81828 kPa  
P1 =            kPa      Er =            kPa  
P1\* =           kPa      Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 6+380: 3mRt: Hole#16: 0.50m.



Po = 12.6 kPa

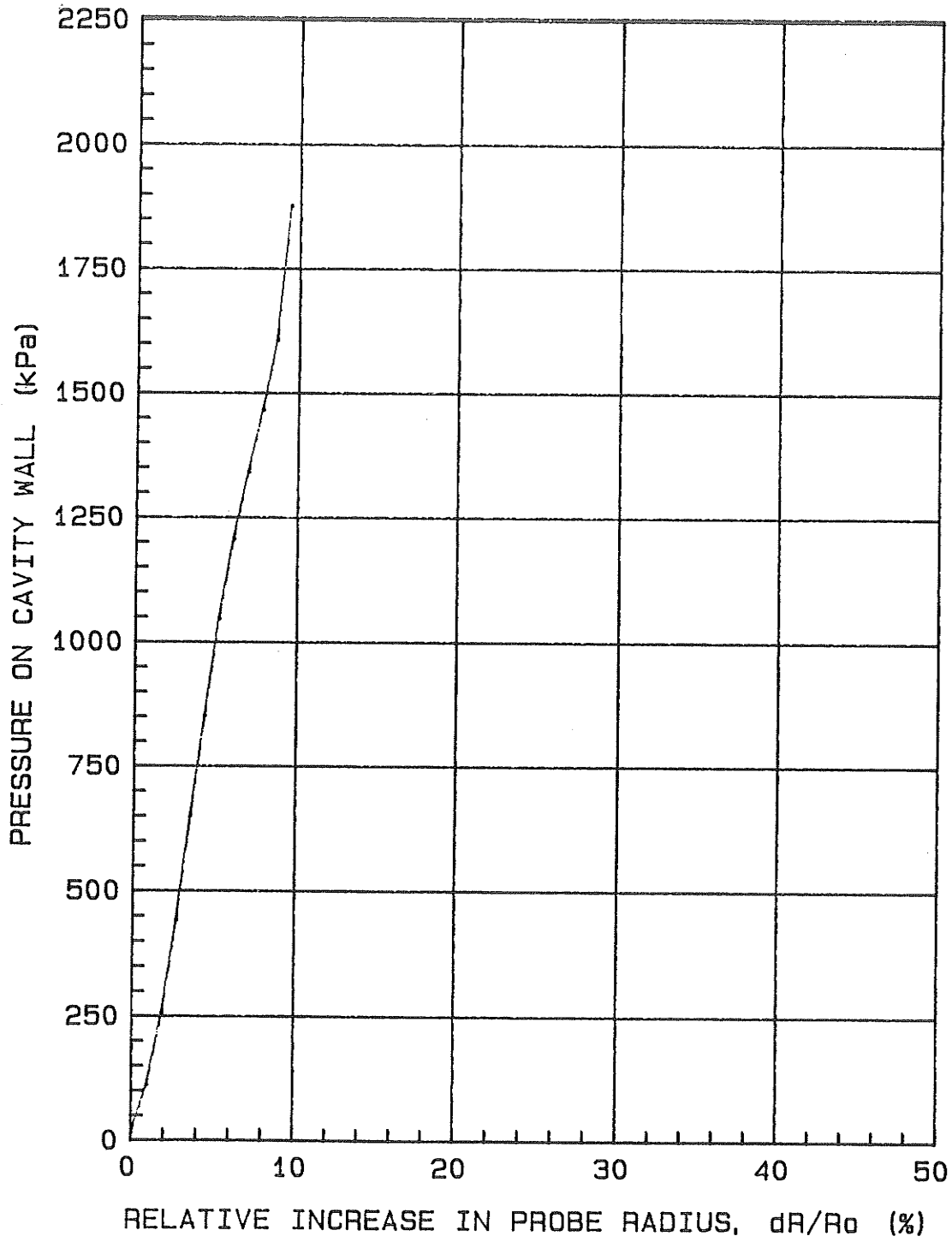
Eo = 32564 kPa

P1 = kPa

Er = kPa

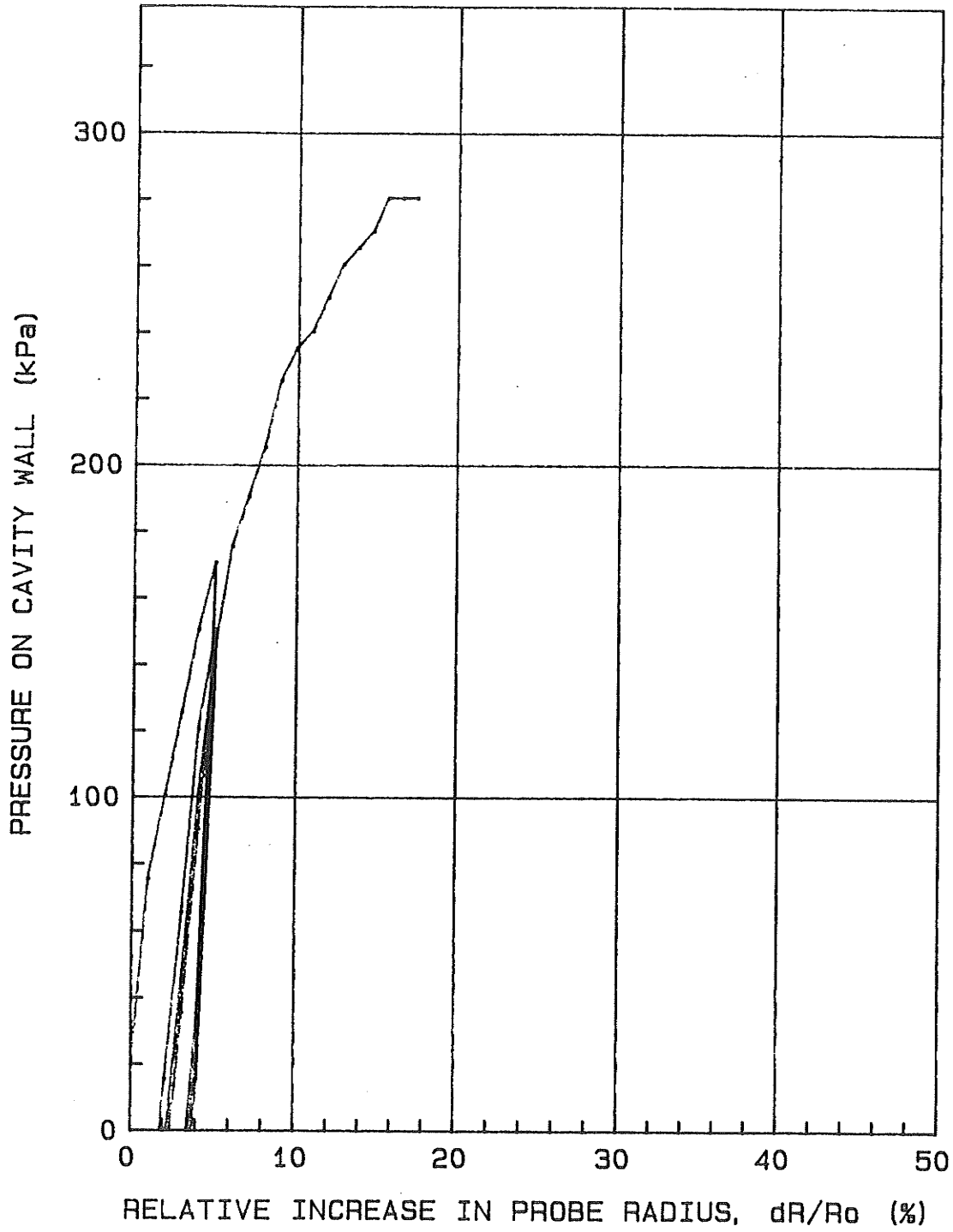
P1\* = kPa

Eo/P1\* =



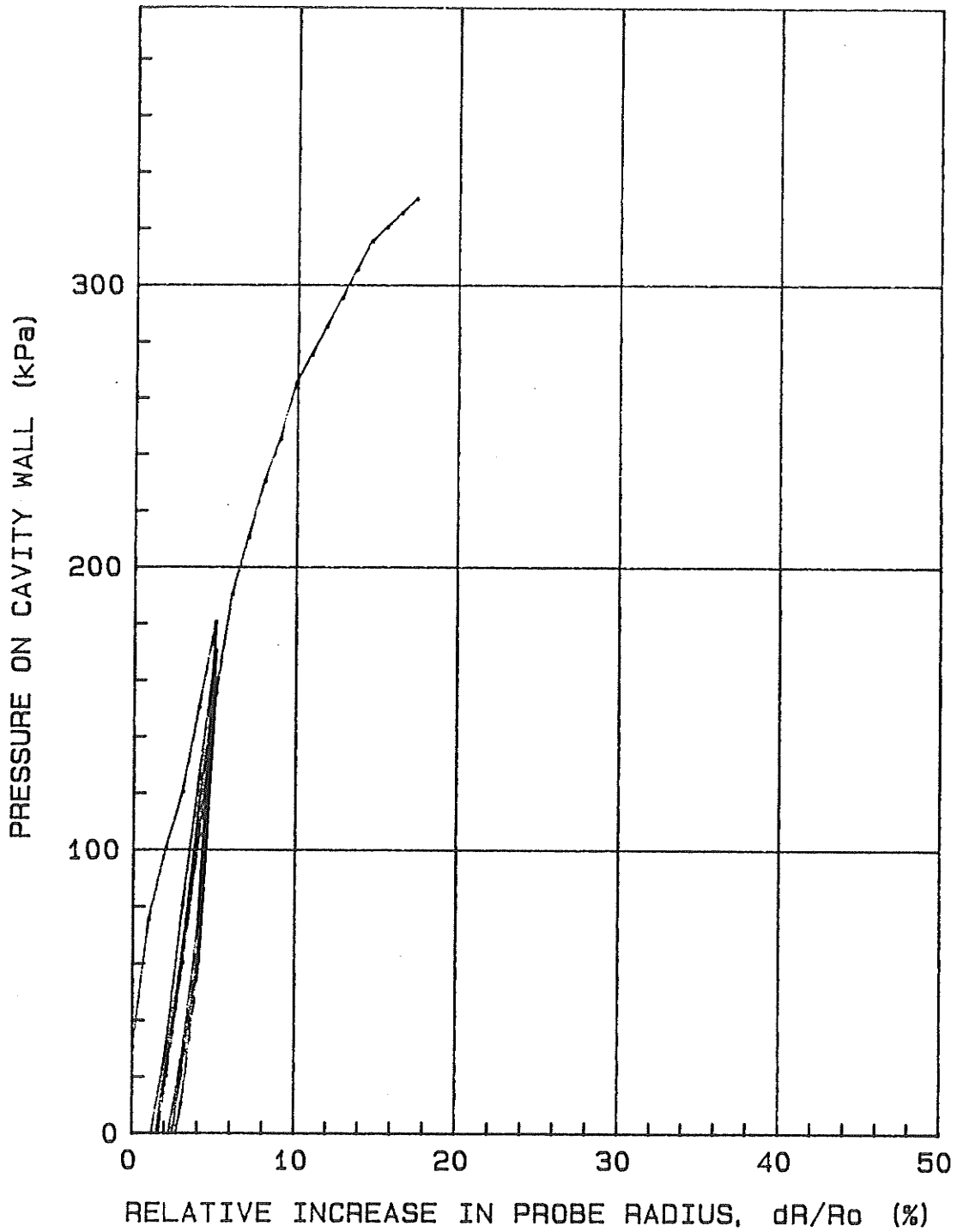
Saskatoon R/W15-33: Oct/88: 6+380: 3mRt: Hole#16: 1.20m.

Po = 15.8 kPa      Eo = 7390 kPa  
P1 = 280 kPa      Er = 7525 kPa  
P1\* = 264.2 kPa    Eo/P1\* = 27.9



Saskatoon R/W15-33: Oct/88: 6+380: 3mRt: Hole#16: 1.60m.

Po = 27.2 kPa      Eo = 5986 kPa  
P1 = 350 kPa      Er = 6306 kPa  
P1\* = 322.8 kPa    Eo/P1\* = 18.5



Saskatoon R/W15-33: Oct/88: 6+380: 3mRt: Hole#16: 2.60m.

Po = 5.3 kPa

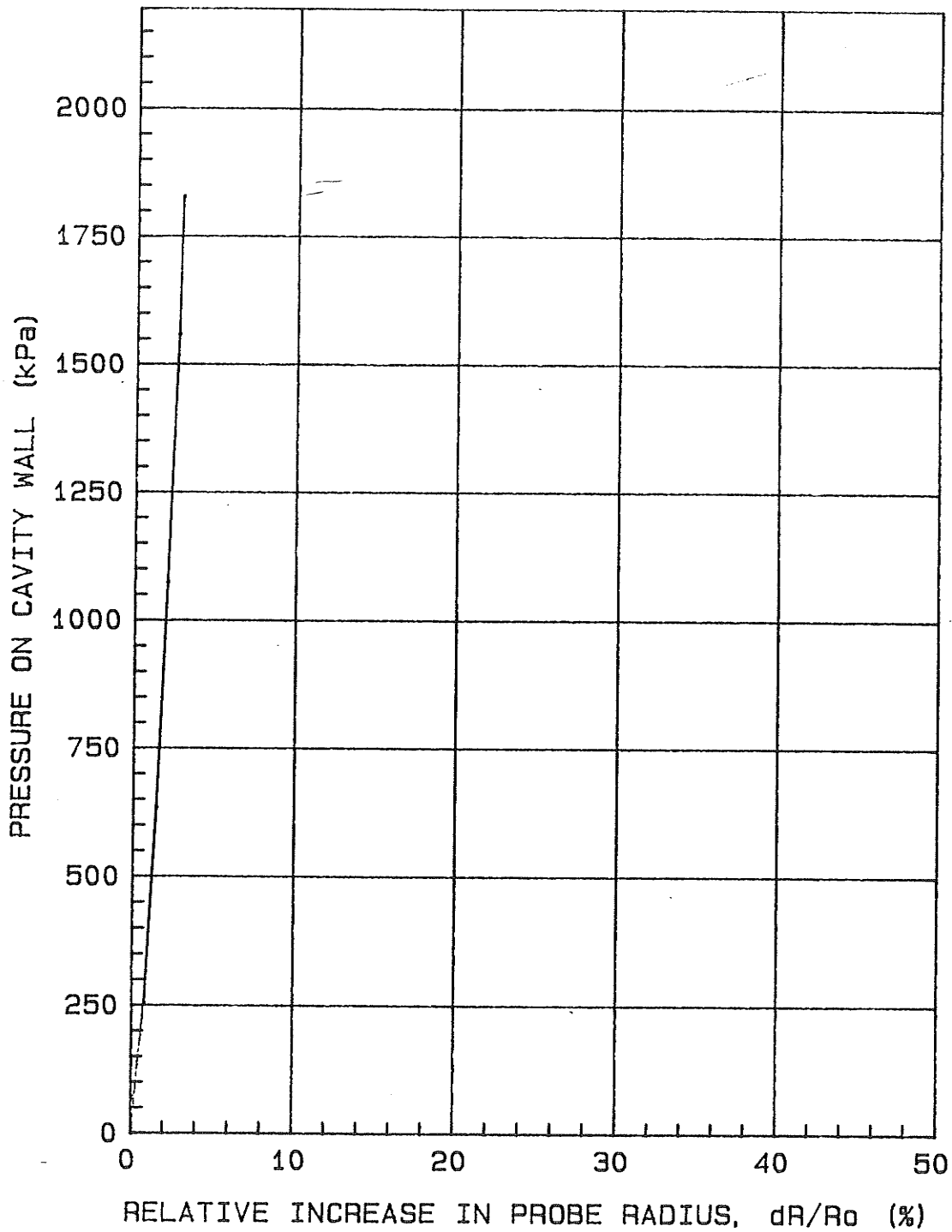
Eo = 107528 kPa

P1 = kPa

Er = kPa

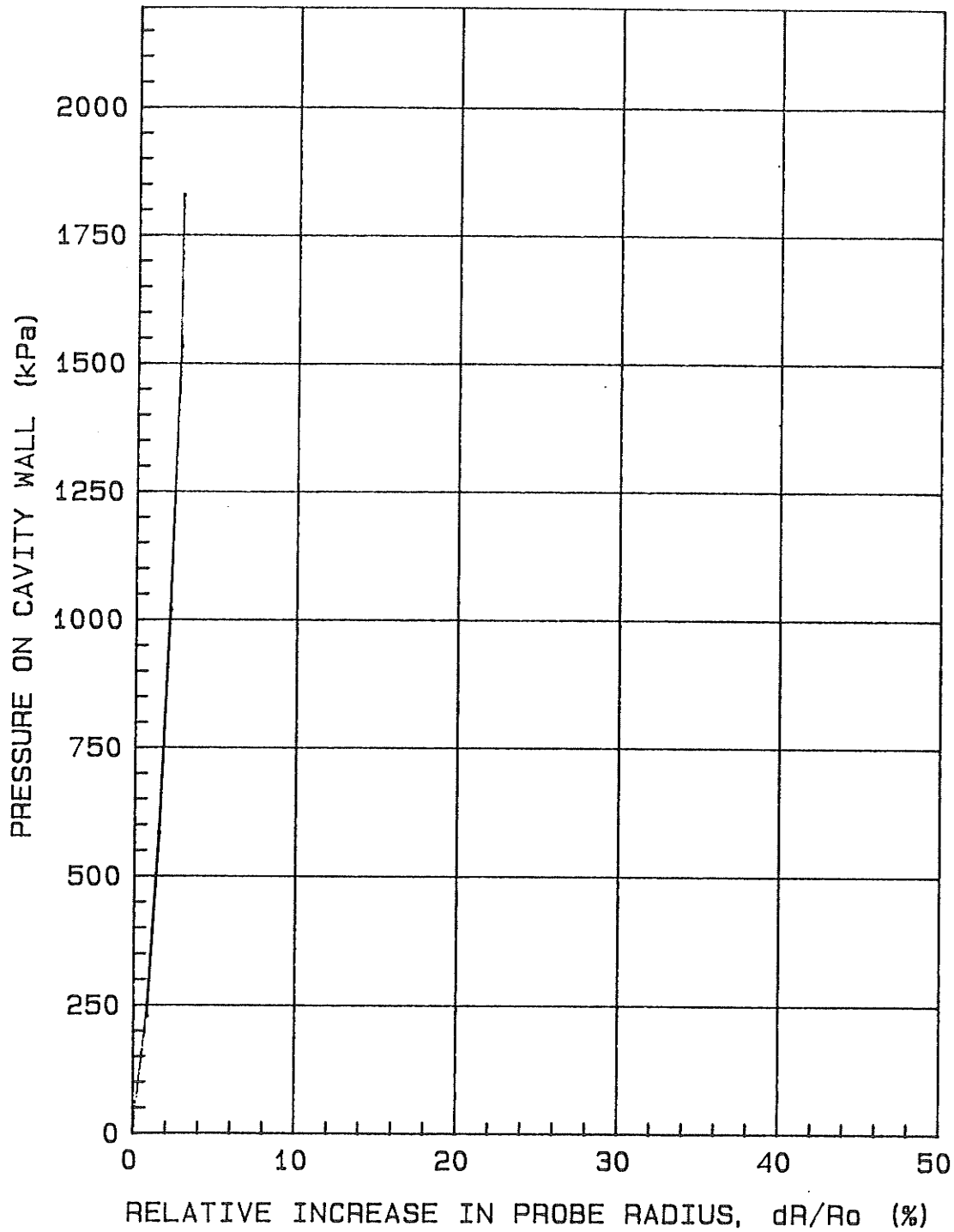
P1\* = kPa

Eo/P1\* =



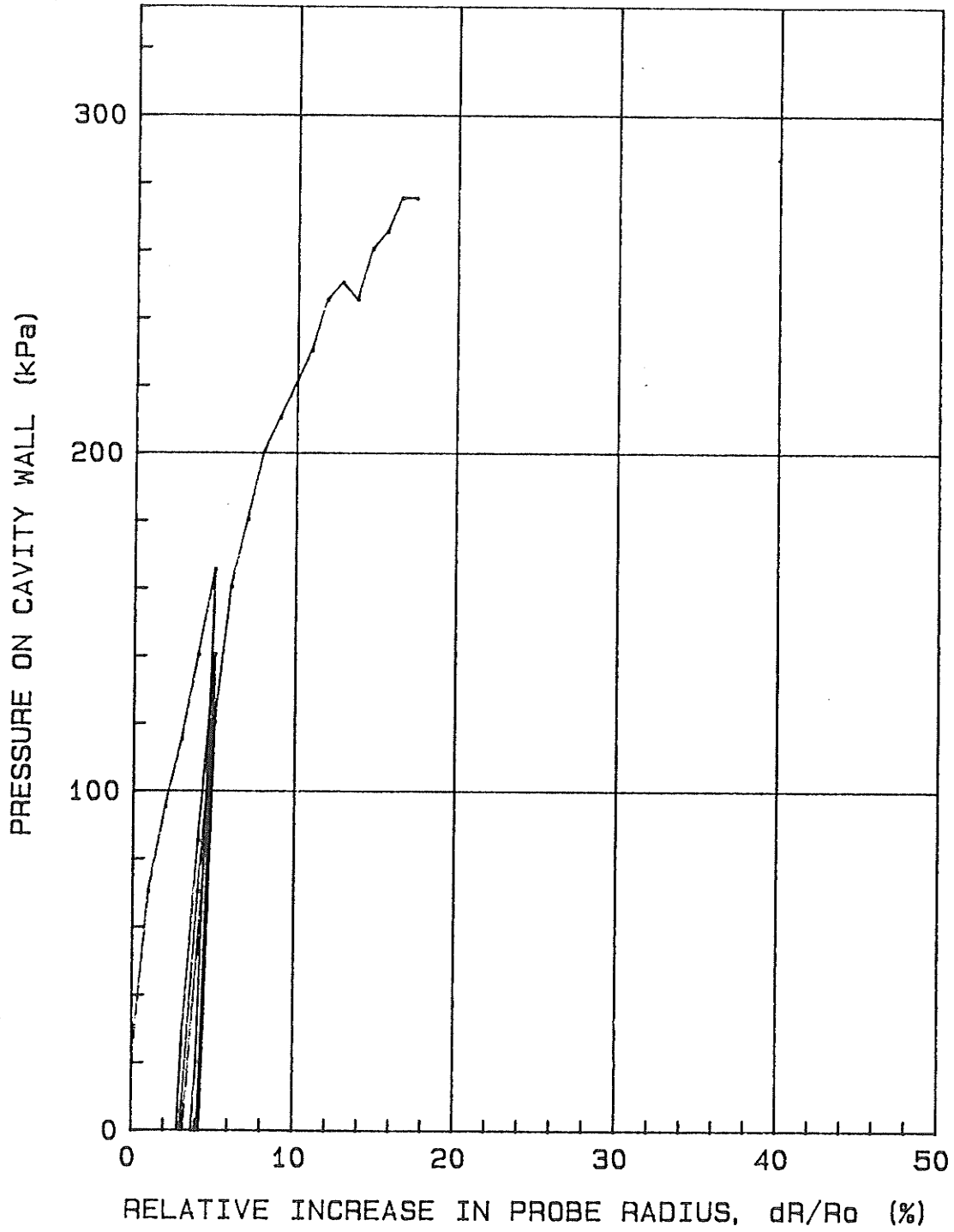
Saskatoon R/W15-33: Oct/88: 6+470: 3mLt: Hole#17: 0.50m.

$P_0 = 10.5 \text{ kPa}$        $E_0 = 131708 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = \quad \quad \quad \text{kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



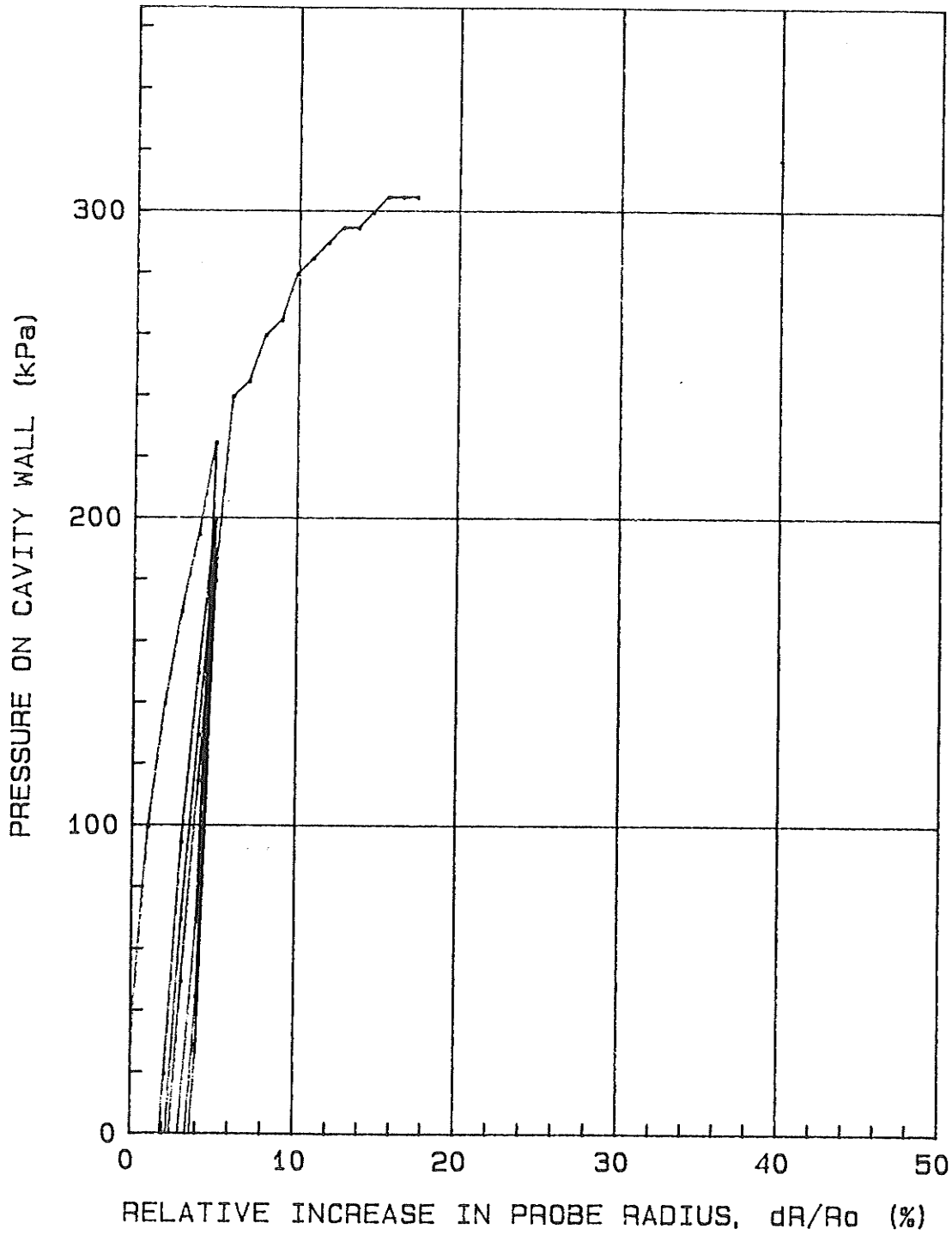
Saskatoon R/W15-33: Oct/88: 6+470: 3mLt: Hole#17: 1.00m.

Po = 15.8 kPa      Eo = 6684 kPa  
P1 = 250 kPa      Er = 8990 kPa  
P1\* = 234.2 kPa    Eo/P1\* = 28.5



Saskatoon R/W15-33: Oct/88: 6+470: 3mLt: Hole#17: 1.60m.

Po = 24.8 kPa      Eo = 9548 kPa  
P1 = 305 kPa      Er = 9483 kPa  
P1\* = 280.2 kPa    Eo/P1\* = 34



Saskatoon R/W15-33: Oct/88: 6+470: 3mLt: Hole#17: 2.50m.

Po = 4.2 kPa

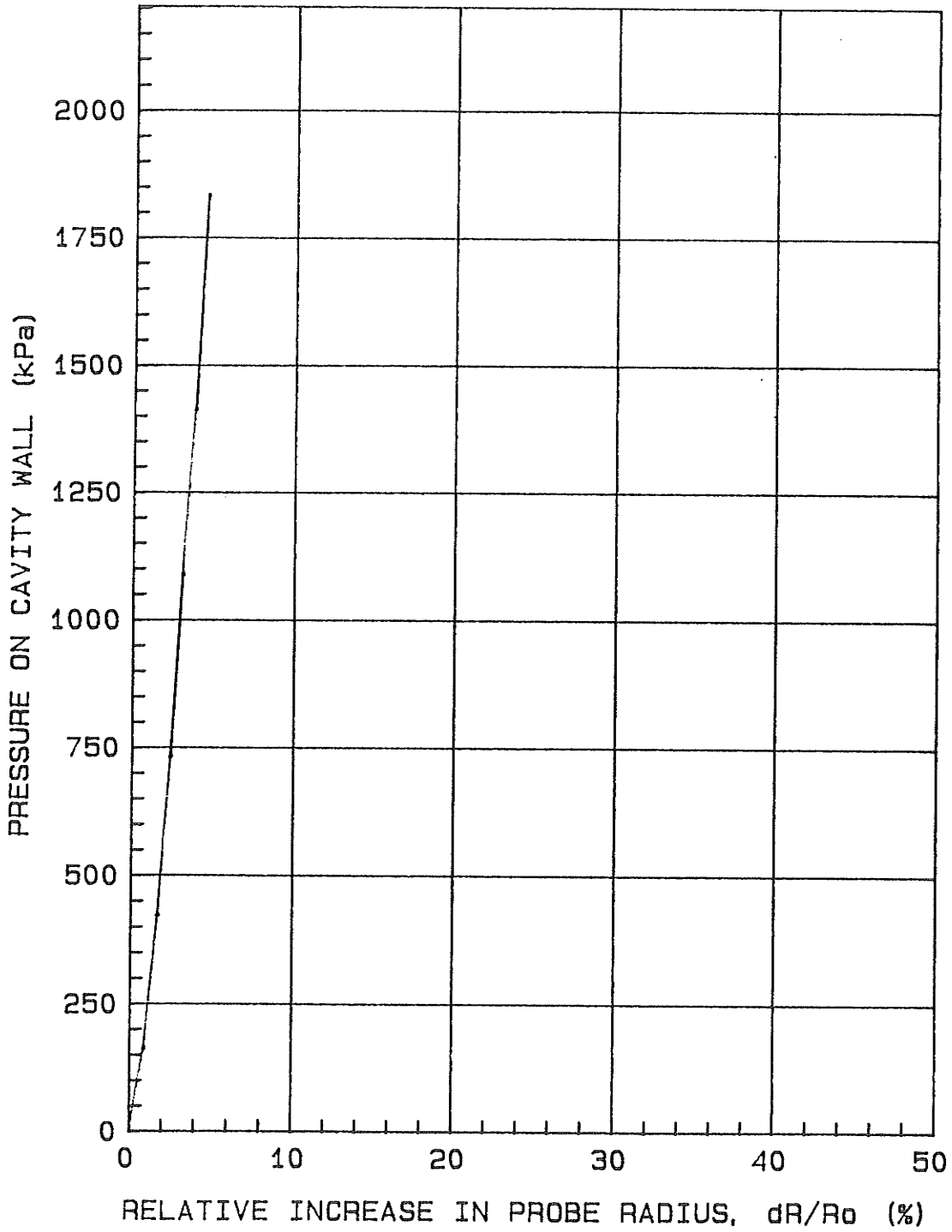
Eo = 63435 kPa

P1 = kPa

Er = kPa

P1\* = kPa

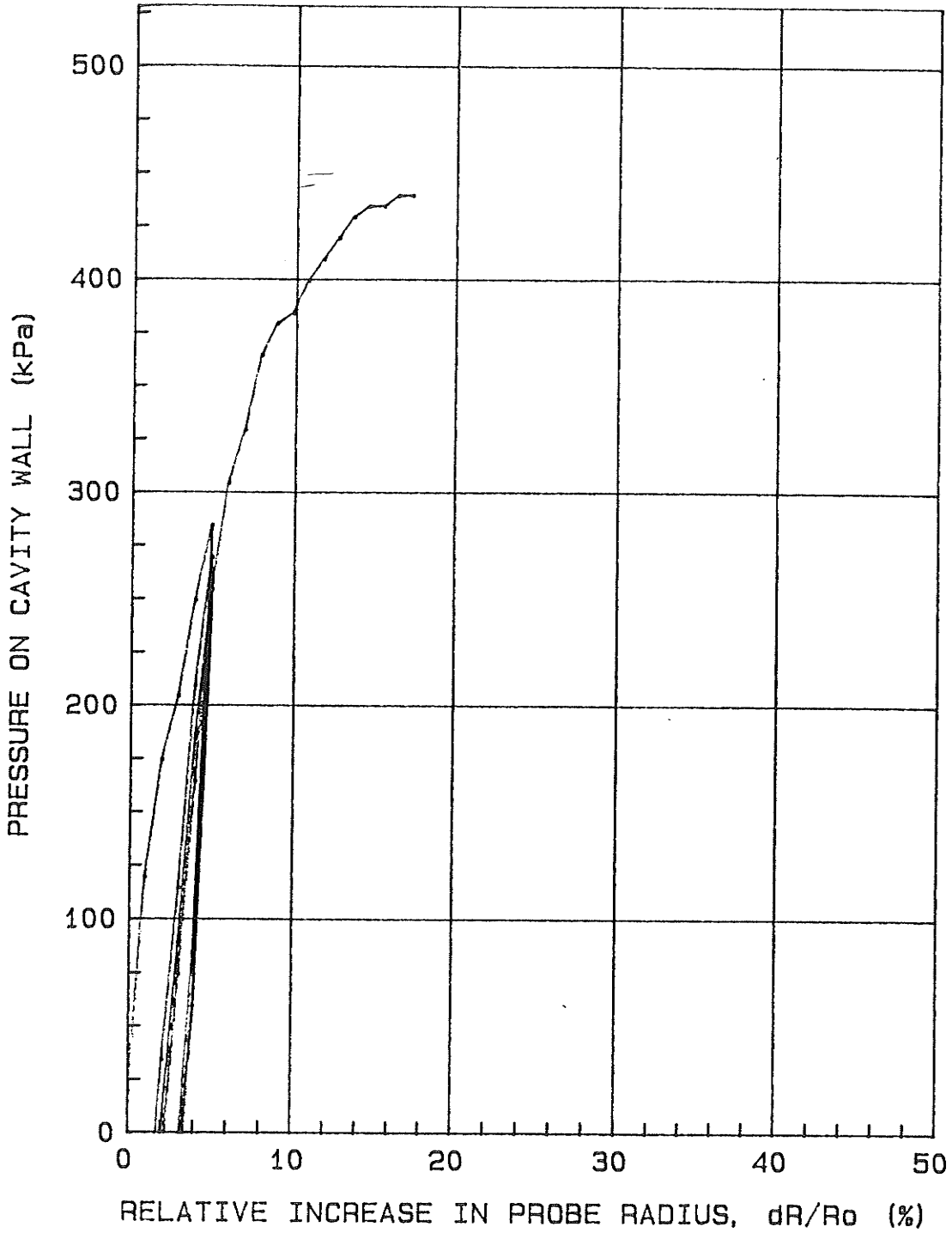
Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 6+590: 3mRt: Hole#18: 0.40m.

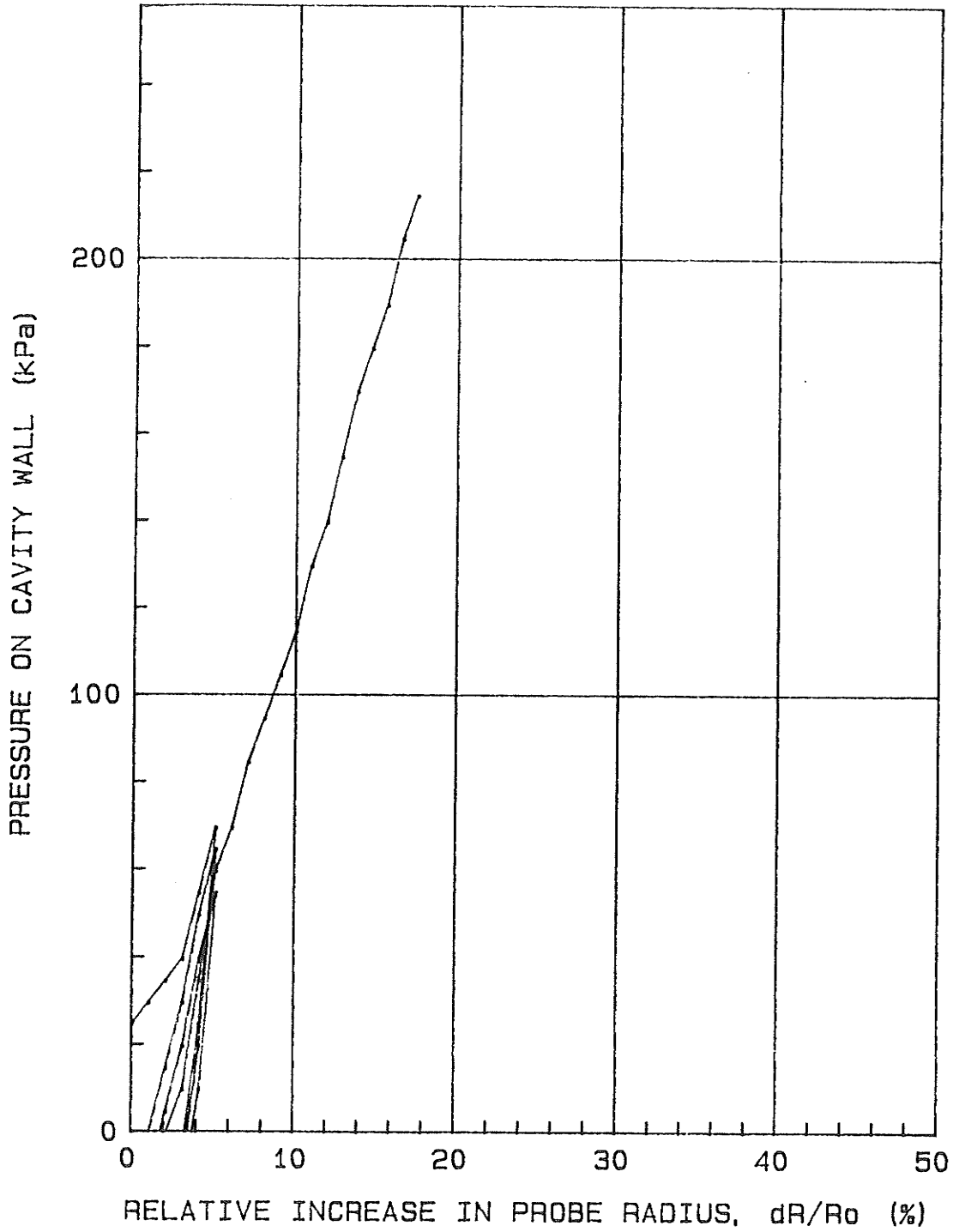


$P_0 = 14.9 \text{ kPa}$        $E_0 = 14070 \text{ kPa}$   
 $P_1 = 380 \text{ kPa}$        $E_r = 12924 \text{ kPa}$   
 $P_1^* = 365.1 \text{ kPa}$      $E_0/P_1^* = 38.5$



Saskatoon R/W15-33: Oct/88: 6+590: 3mRt: Hole#18: 1.50m.

$P_0 = 19.8 \text{ kPa}$        $E_0 = 2059 \text{ kPa}$   
 $P_1 = \quad \quad \text{kPa}$        $E_r = 3466 \text{ kPa}$   
 $P_{1*} = \quad \quad \text{kPa}$        $E_0/P_{1*} =$



Saskatoon R/W15-33: Oct/88: 6+590: 3mRt: Hole#18: 2.00m.

Po = 5.3 kPa

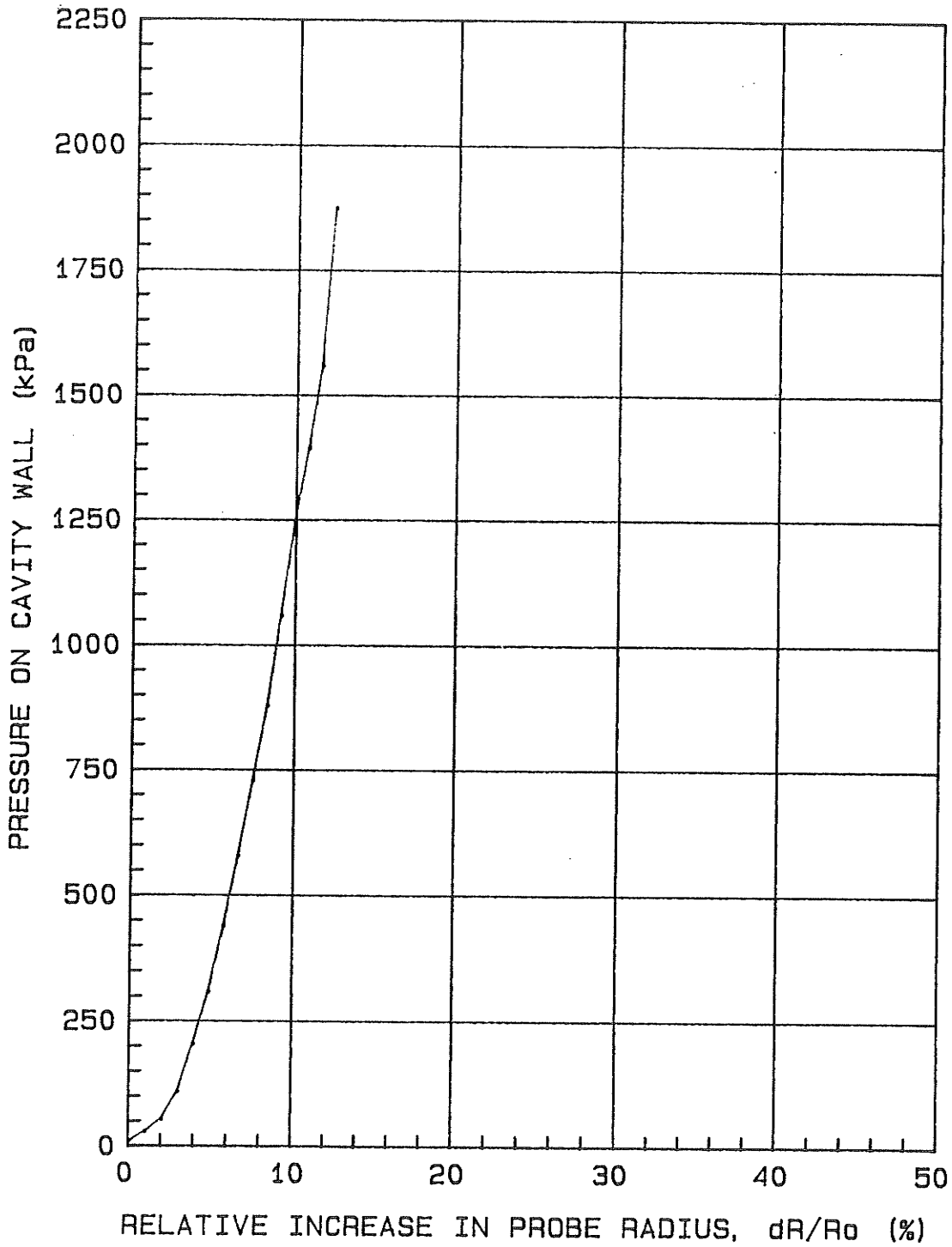
Eo = 28734 kPa

P1 = kPa

Er = kPa

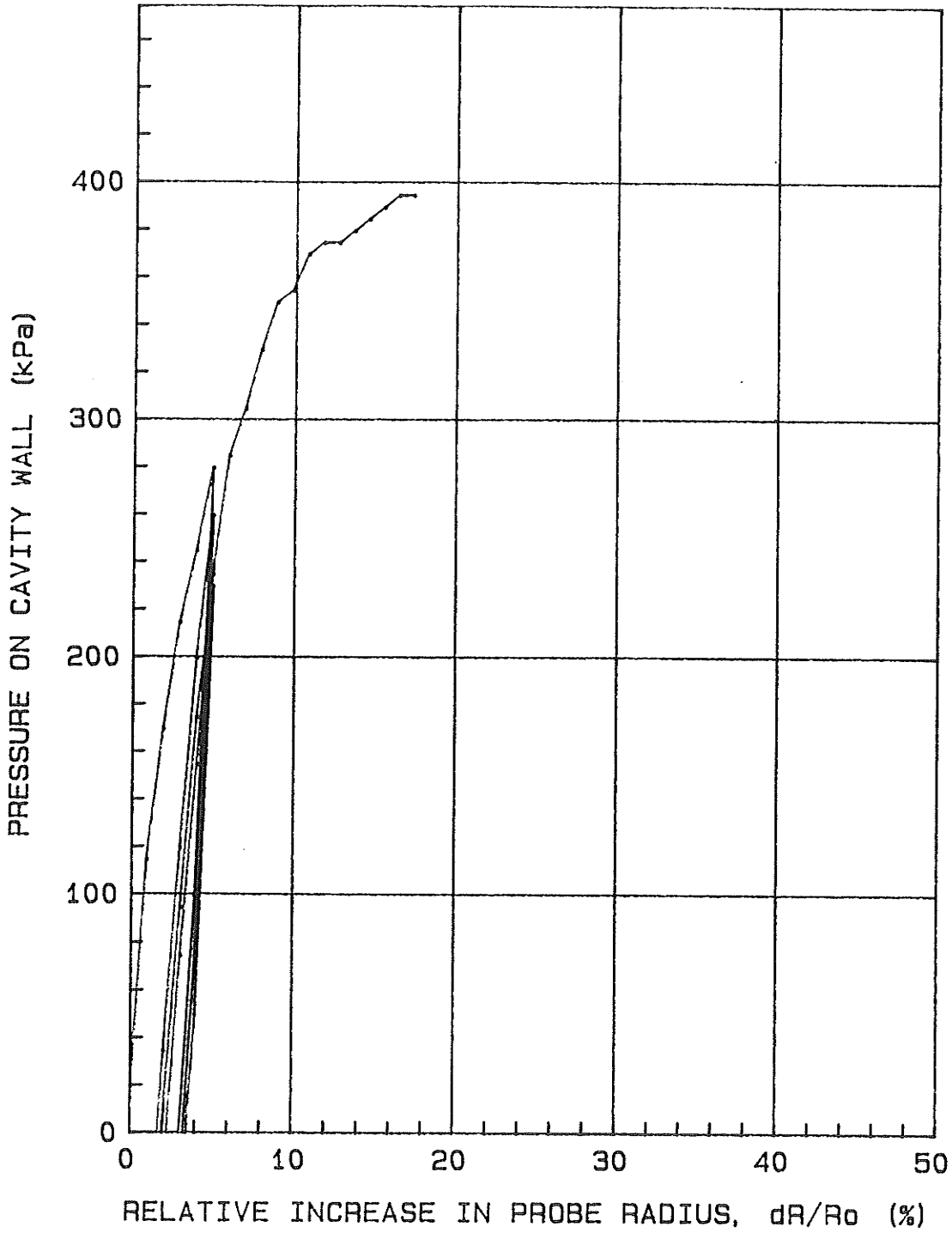
P1\* = kPa

Eo/P1\* =



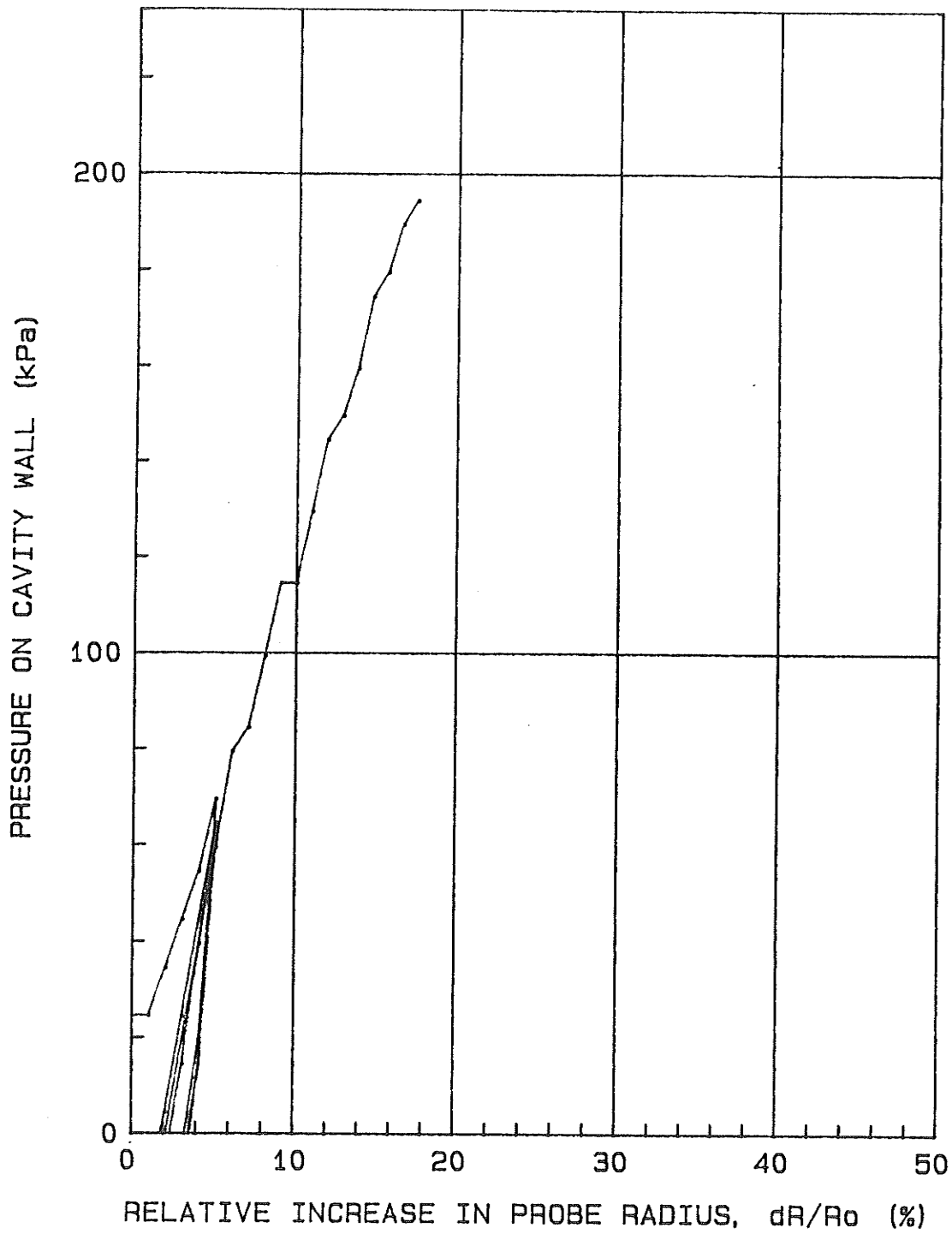
Saskatoon R/W15-33: Oct/88: 6+680: 3mLt: Hole#19: 0.50m.

Po = 14.9 kPa      Eo = 13296 kPa  
P1 = 375 kPa      Er = 12111 kPa  
P1\* = 360.1 kPa    Eo/P1\* = 36.9



Saskatoon R/W15-33: Oct/88: 6+680: 3mLt: Hole#19: 1.50m.

Po = 21.6 kPa      Eo = 1514 kPa  
P1 = 115 kPa      Er = 2970 kPa  
P1\* = 93.4 kPa    Eo/P1\* = 16.2



Saskatoon R/W15-33: Oct/88: 6+680: 3mLt: Hole#19: 2.00m.

Po = 5.3 kPa

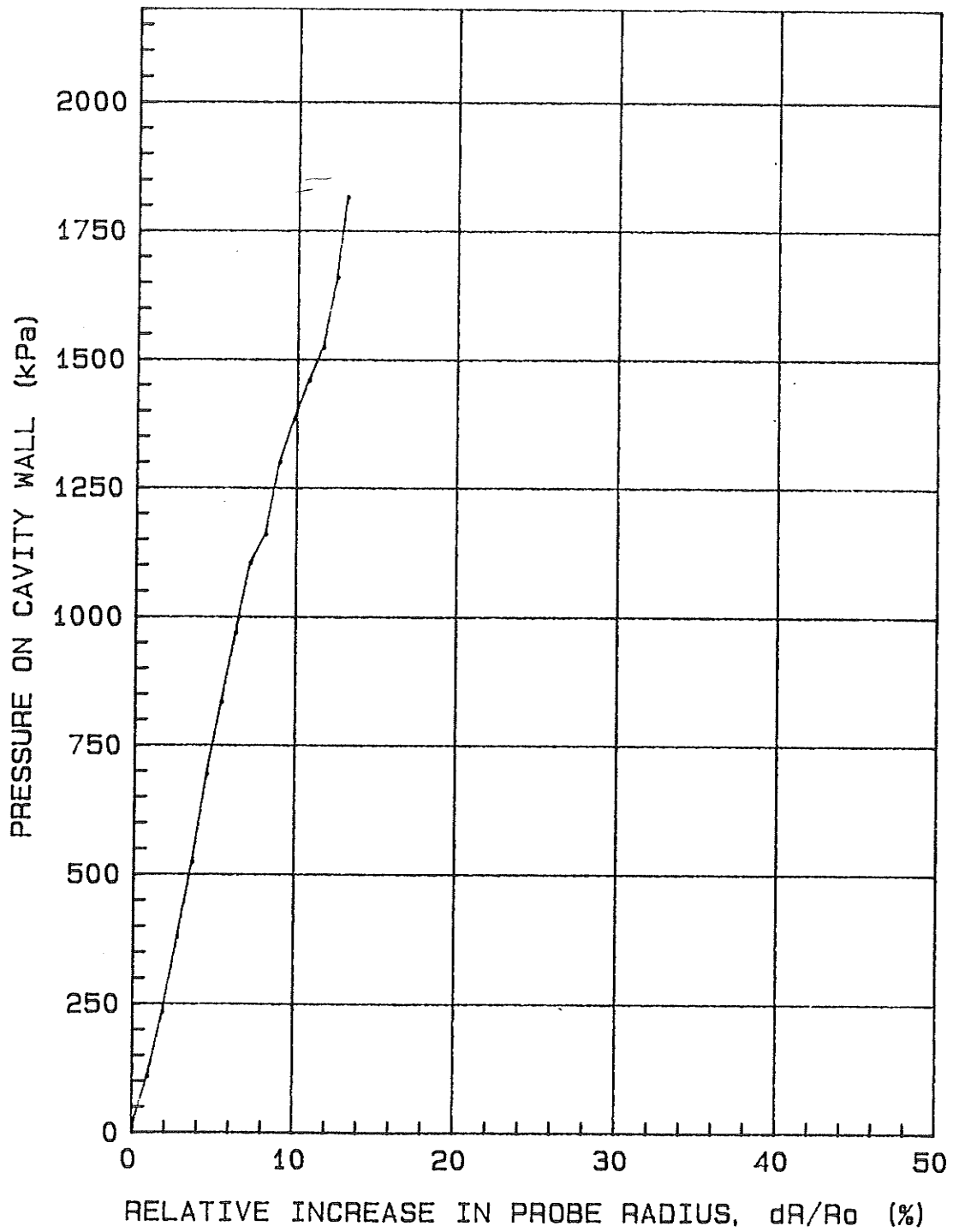
Eo = 22973 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+084: 18mLt: Hole#23: 0.50m.

Po = 5.3 kPa

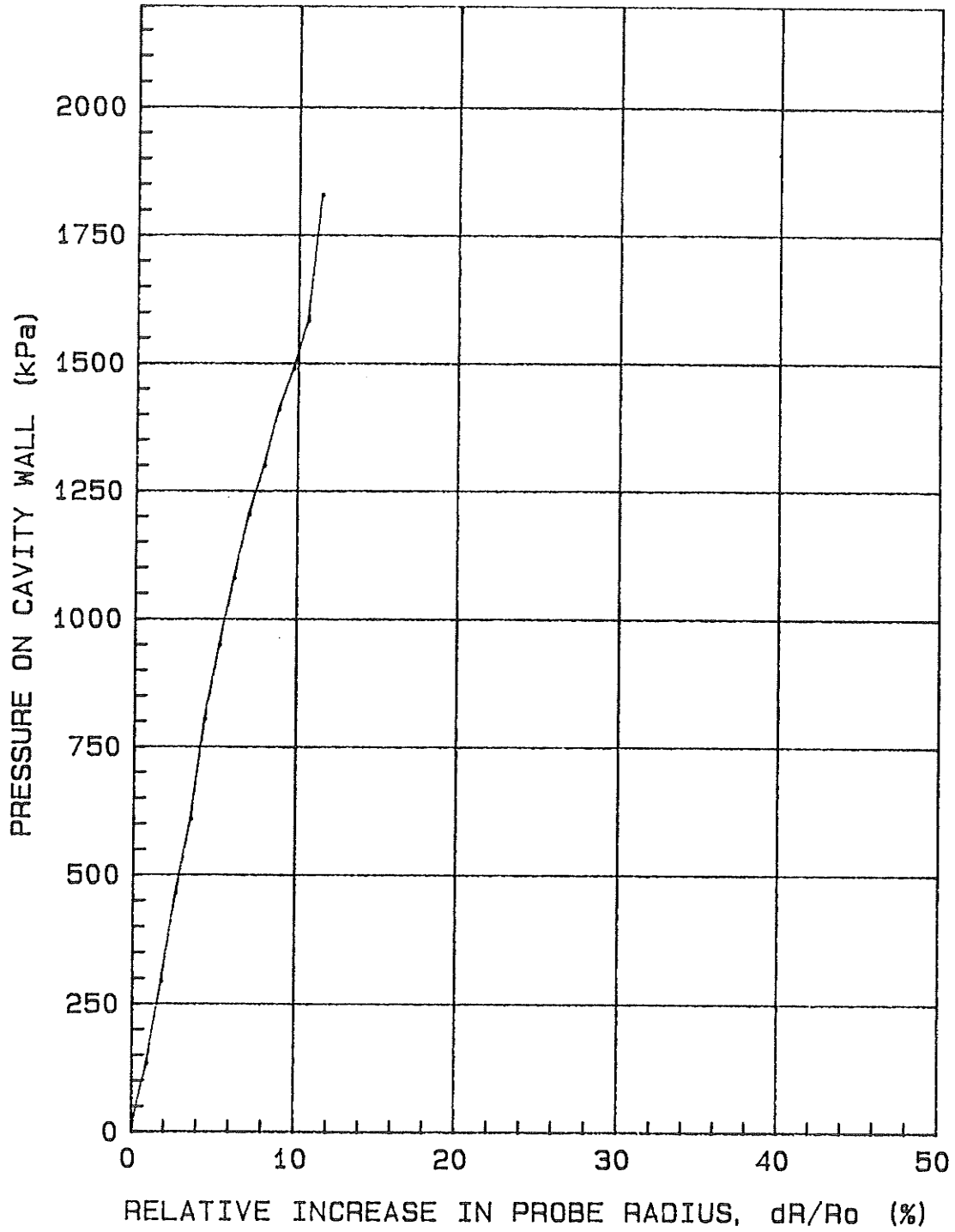
Eo = 22779 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+084: 6mRt: Hole#24: 0.50m.

Po = 5.3 kPa

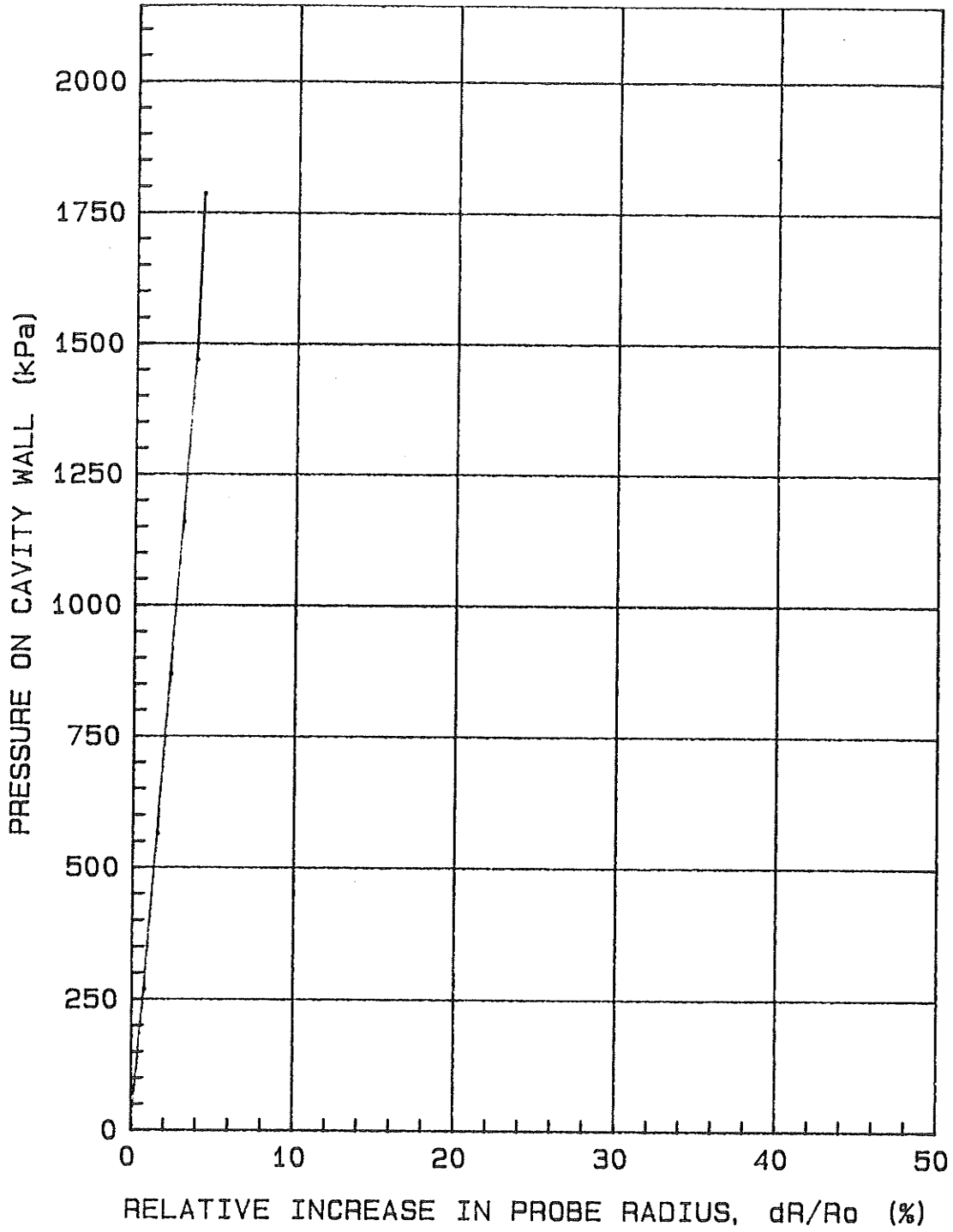
Eo = 55024 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+084: 18mRt: Hole#25: 0.50m.



Po = 5.3 kPa

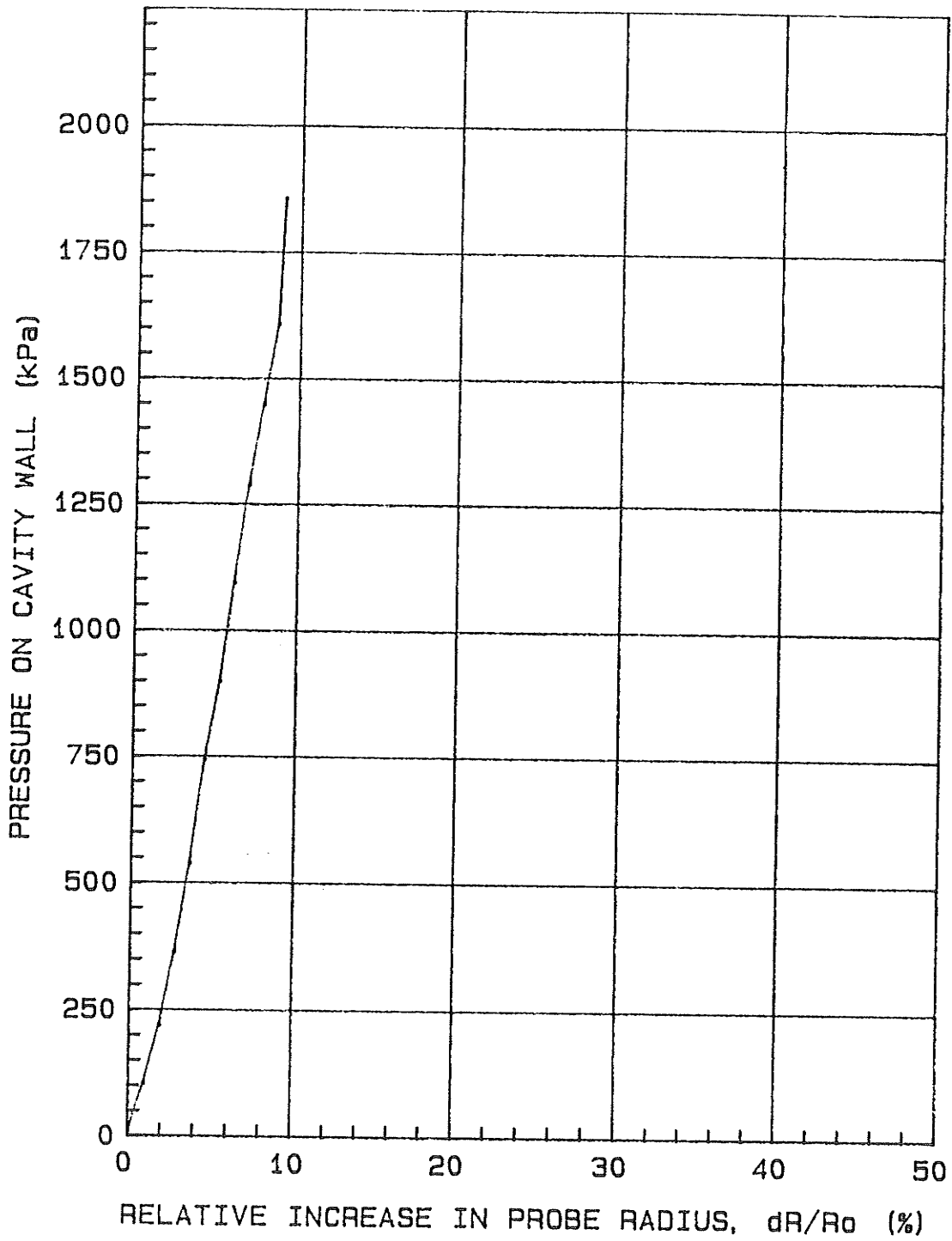
Eo = 29886 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+061: 6mLt: Hole#26: 0.50m.

Po = 5.3 kPa

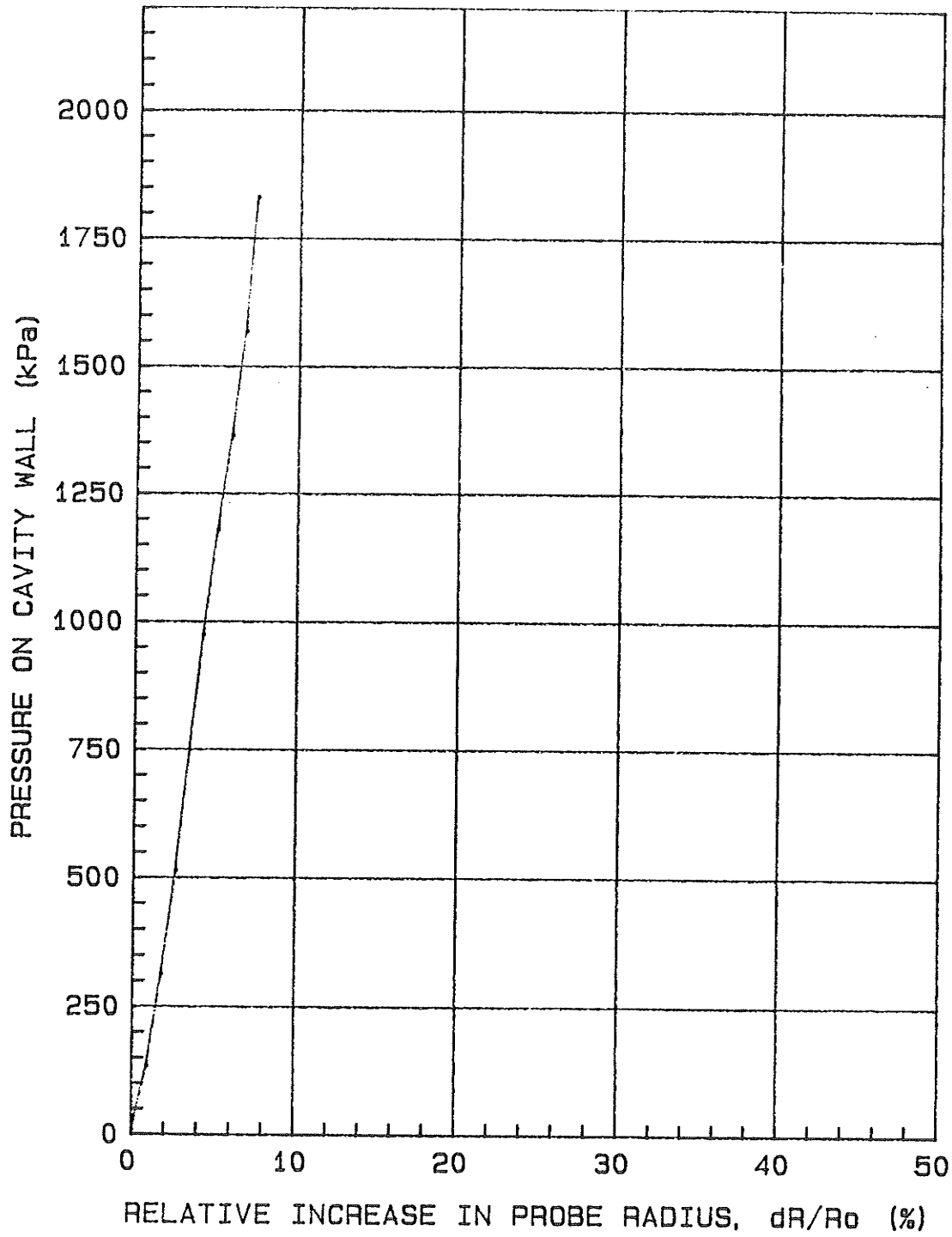
Eo = 37782 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+061: 12mRt: Hole#27: 0.50m.

Po = 5.3 kPa

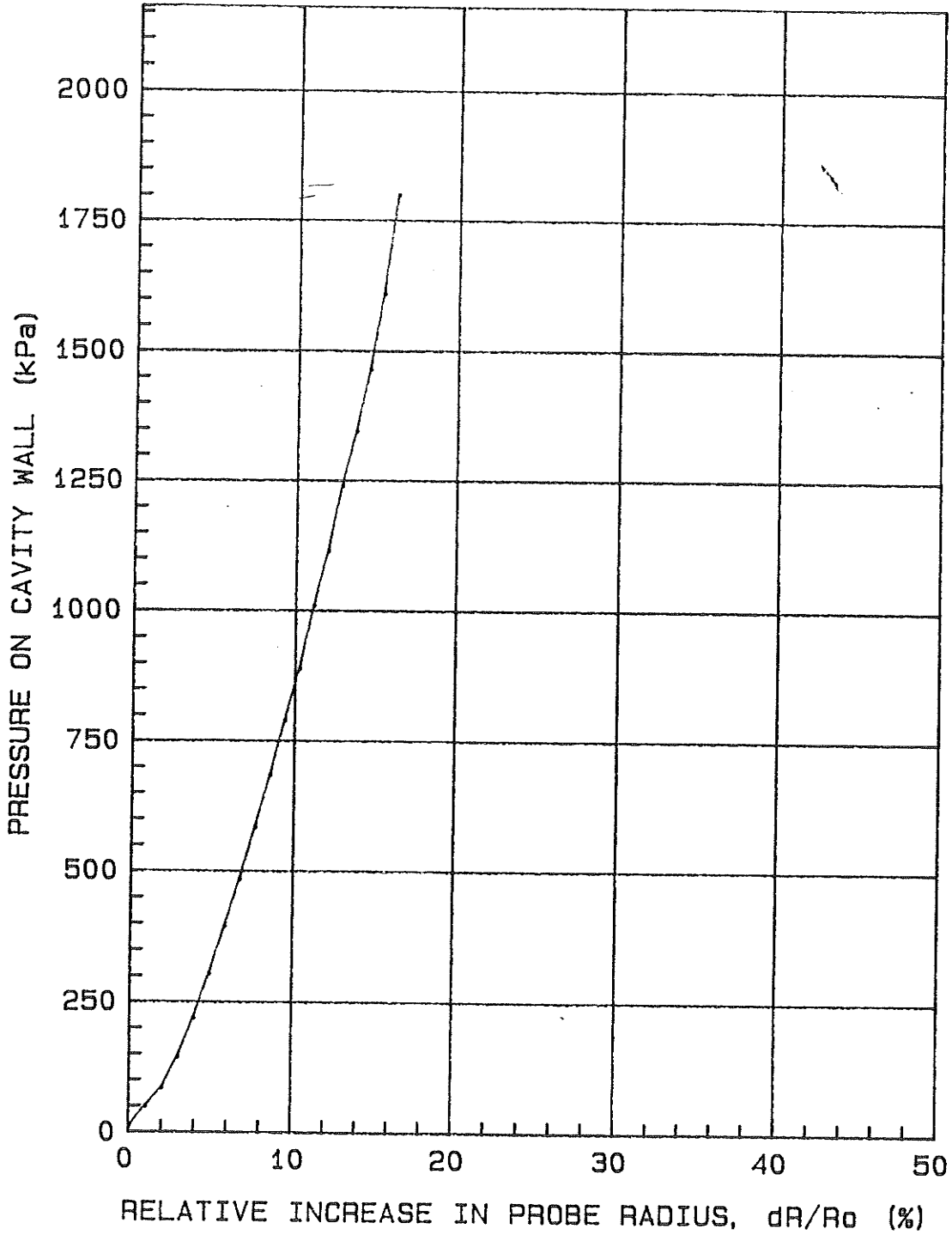
Eo = 18927 kPa

P1 = kPa

Er = kPa

P1\* = kPa

Eo/P1\* =



Saskatoon R/W15-33: Oct/88: 5+031: 6mLt: Hole#28: 0.50m.