–

. ( )

.

.

.

:

1.64

. 15 mm   5 mm   **5.02**

119

( )

1 mm

.

5 mm

K t

K_f

.

(FEM)

.

.

Introduction

120

...

. [1]

(1)

. [2 3 4]

.

. [6 5]

(Interference Effect)

.

. [7 , 8]

(   )   .

. [10 9]

Experimental Procedure

(   )

. (Finite Element Method)

(200 x 50 x 6) mm   58   K100

(120   90   60   45   30   10)

.   10 mm

(15   12.5   10   7.5   5) mm   30

25 20 15 10 5) mm   .

. 10 mm   (30

(FEM)   Ansys 5.4

.

.   (Boundary Condition)

.

(Convergence Tests)

.

2502 Testing Machine DARTIC

(Straining Unit)   (200 KN)

T   )   -   (S troke)

(ension -Zero

.

(Load Cycle)   . 4 r.p.s

. (S i ne Wave)

. [6]

(FatigueStress Concentration)

(Endurance Limit)

.

Result and Discussion

:   − 1

(200 x 50 x 60) mm   (Models)

10   mm

.(a   , b)(1)

(Two Blocks)

Y , X

.

(FEM   )

. (   )
)   K_t   (2)
                              y   (

.

.   K_t   (3)

        *

10 mm   K_t
                              :

$$K_t = 15.981 - 0.083 \; \theta$$

.   θ
                                            ●

.

                              :   – 2
(4)

                              Y

                                            Y
                    (5)   .

        *   (5)

123

:

$$K_t = 1.414 \ T - 1.442$$

.   T

-3

.

Y K_t (6)

Y

.

(7)

.

K_t *

:   10 mm

$$K_t = 4.55252 \ * \ r^{-(0.440364)}$$

*

.

.   r

1mm

.

.

: -4

(d , c) (1)

(

(Convergence Test)   Blocks)

(c)   . (Meshes)

.

10   (c)(1)   1

3   8.55

. (c)(1)   (1)   .

(d)(1)

.

6.99	6	10	1
7	7	9.89	2
9.98	8	8.55	3
10	9	2.98	4
10	10	7.1	5

(1)

(c) (1)

.   (2)

10.02	1
9.85	2
2.78	3
2.69	4
2.7	5

(2)

125

(d)(1)

(5)   (3)

. [3]   (3)

(5)   (4)

.

:   – 5

.

K_f

K_f K_t

:

$$q = (K_f - 1) / (K_t - 1)$$

(Notch Sensitivity Index)   q

(3)   .

.

(3)

(   )

(   )

.

.

K_f	K_t	
2.46	3.11	30
2.1	2.51	45
1.62	2	60
1.14	1.51	90

(3)

Conclusion

126

– 1

(FEM) .

.

– 2

Kt .

)

. (

K$_t$

K$_f$

Finite Element Method **FEM**

θ

T

q
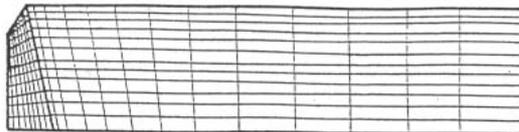
(a) Depth of Notch 5mm

127
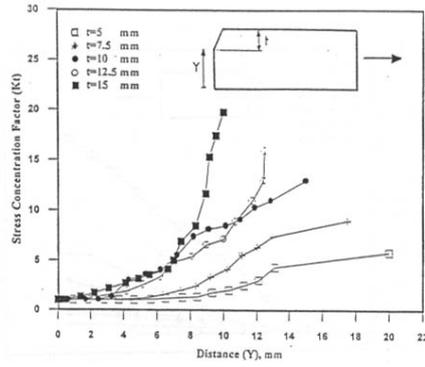
(b) Notch Root Radius 5mm
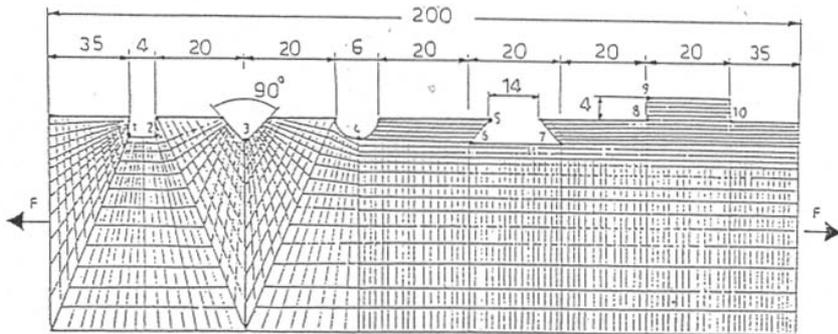
(c)
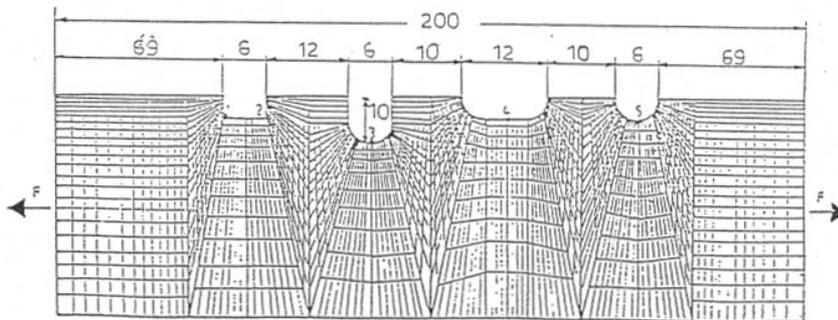
(d)

(1)
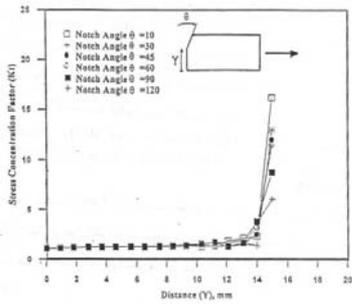
Y   **K$_t$**   **(2)**

10 mm
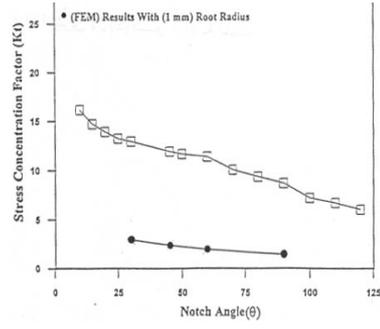
(3)

10 mm

K$_t$ **(5)**

30

Y   **K$_t$**   **(4)**

30

129
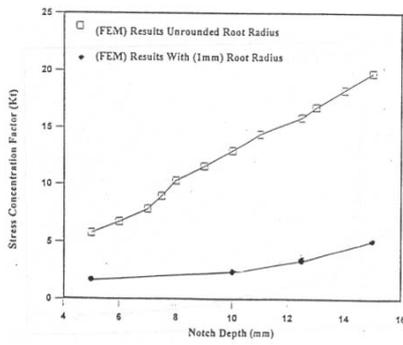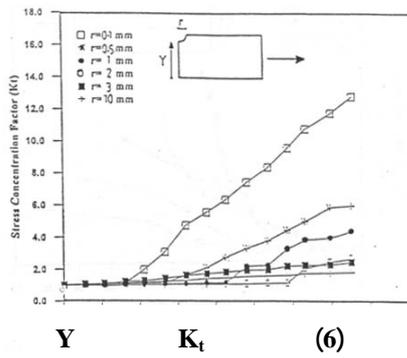
Y   **K$_t$**   **(6)**

10 mm

Y   **K$_t$**   **(7)**

10mm

130
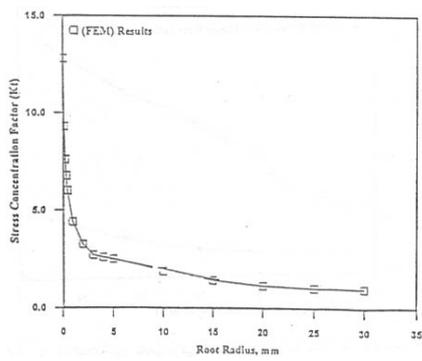
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