

E-mail: smhfarrash@yahoo.com

(Hot forging)

SuperForge

P
R
Y
h
 μ

σ
 ε
 ρ
 r
 θ



METALFORM .

QForm []

DIEFORGE []

[]

FVM(Finite Volume Method)

(CFD)

M.Wheel

W.J.Ferguson . []

. []

K.Zarrabi

. []

(Axisymmetric)

G.A.Taylor

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Solidworks

SuperForge

SuperForge

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(Upsetting)

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h R ()

(Finisher)

(Blocker)

∴
 $2\mu Pr dr + h\sigma_\theta dr - h\sigma_r dr - hrd\sigma_r = 0$ ()

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()

$\epsilon_\theta = \epsilon_r$ ()

$\sigma_\theta = \sigma_r$ ()

σ_r, σ_z

$\sigma_1 - \sigma_2 = Y \Rightarrow \sigma_r + P = Y \Rightarrow$
 $d\sigma_r = -dP$ ()

∴ () () ()

$\frac{dP}{P} = -\frac{2\mu}{h} dr$ ()

$\sigma_r(R) = 0 \Rightarrow P = Y$ ()

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$$P = Y \exp\left[\frac{2\mu}{h}(R-r)\right] \quad ()$$

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(Axisymmetric)

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$$error = \frac{|\hat{P} - P|}{P} \times 100 \quad ()$$

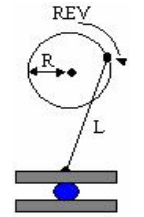
\hat{P}

P

()

()

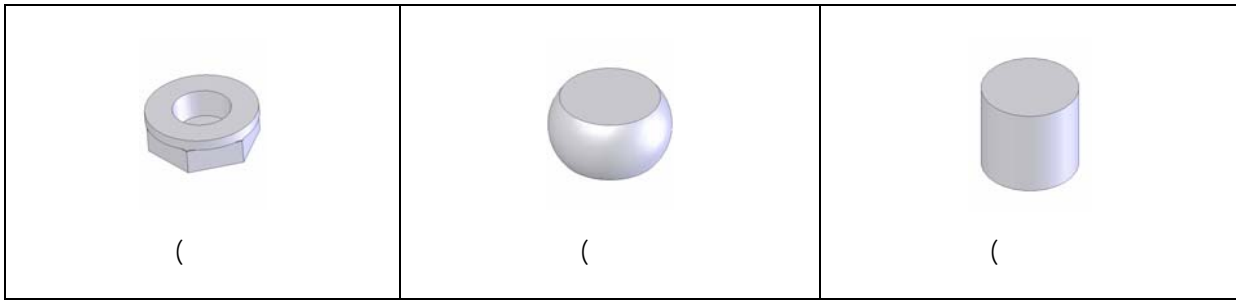
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	70 (mm)	(R)
	520(mm)	(L)
	90(rpm)	(REV)

DIN 1.1191	
DIN 1.2765	
0.2	
200 °C	
1100°C	
20 °C	
50 (W / m ² k)	
6000 (W / m ² k)	

/	
/	
/	

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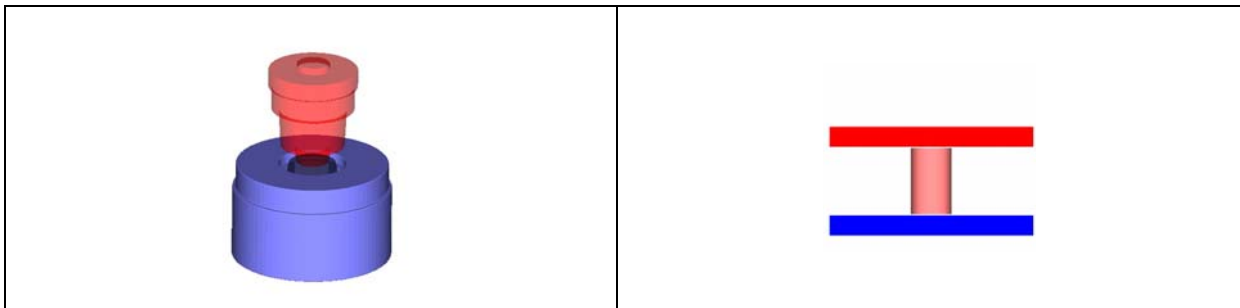
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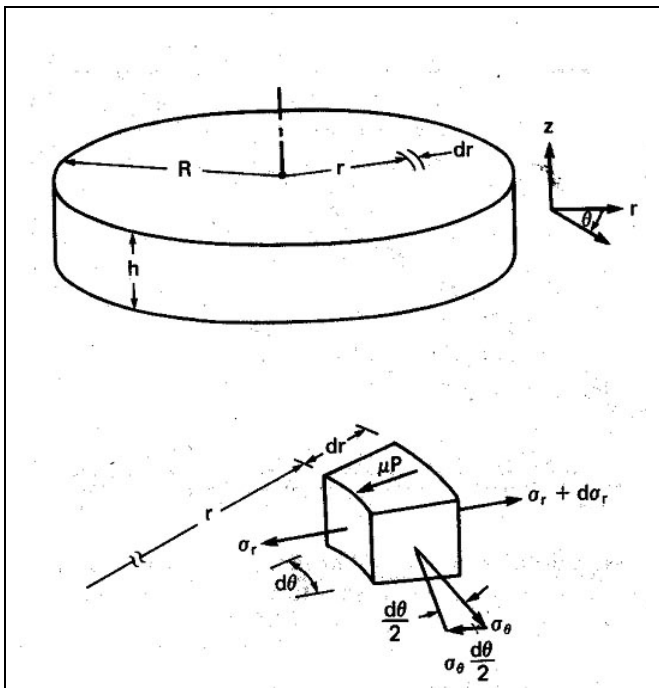
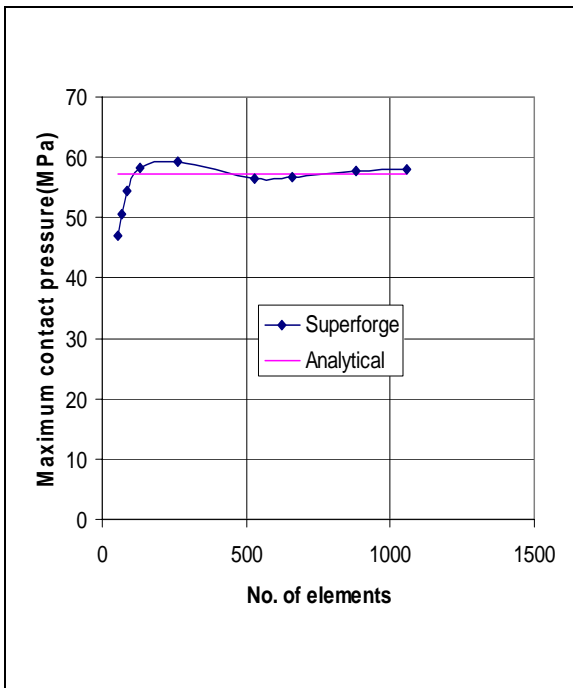
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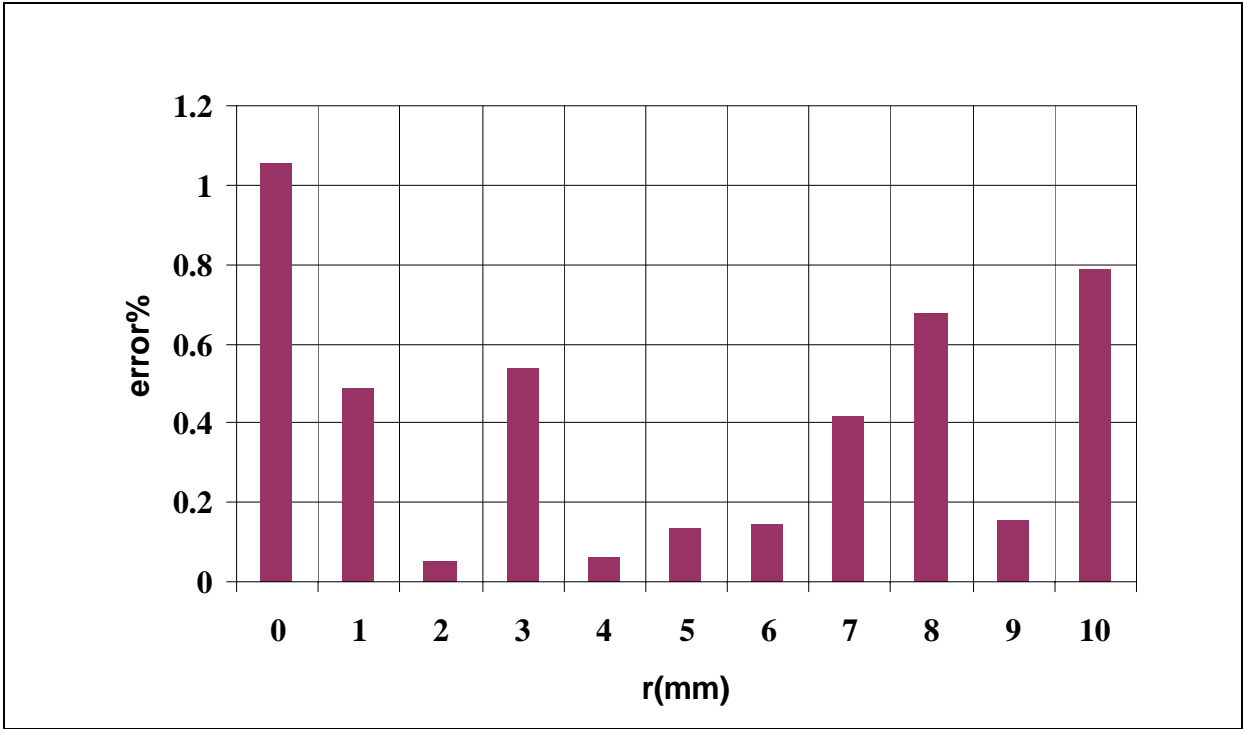
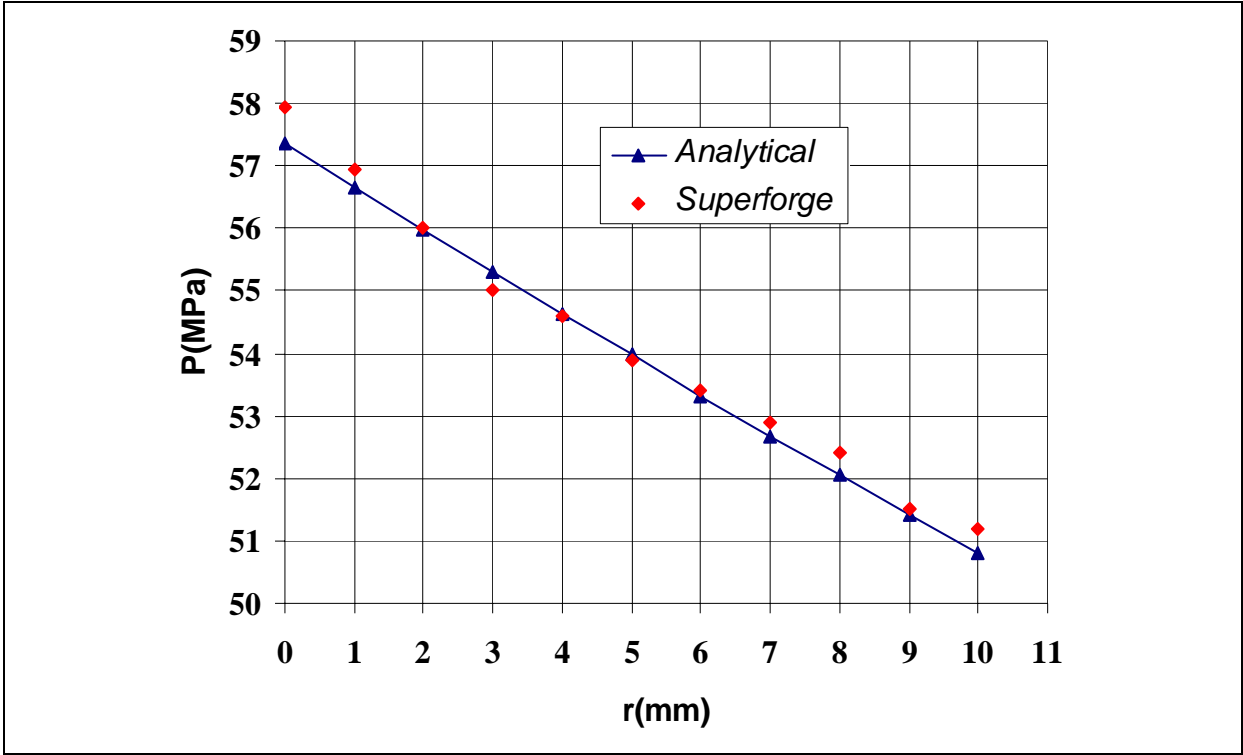
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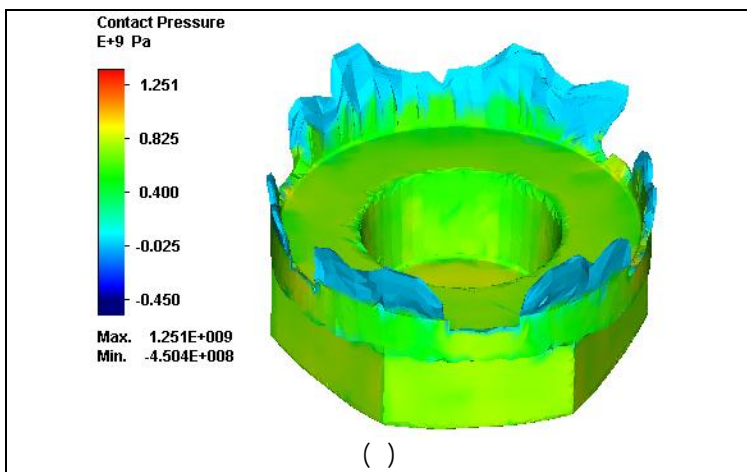
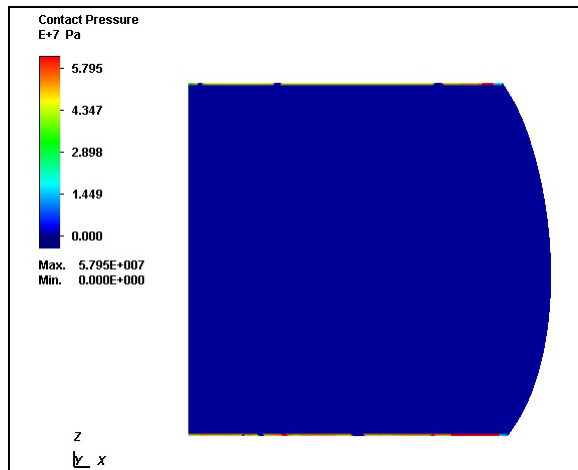
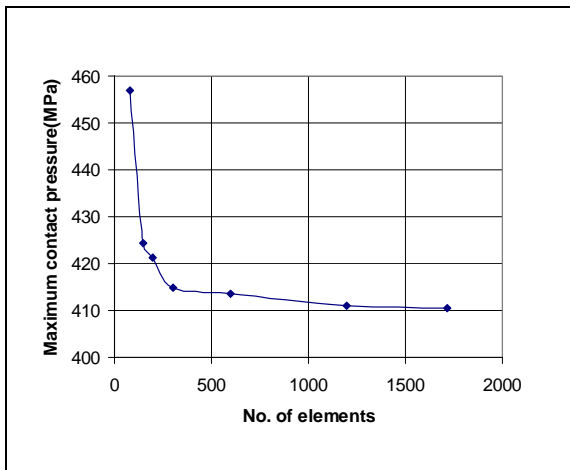


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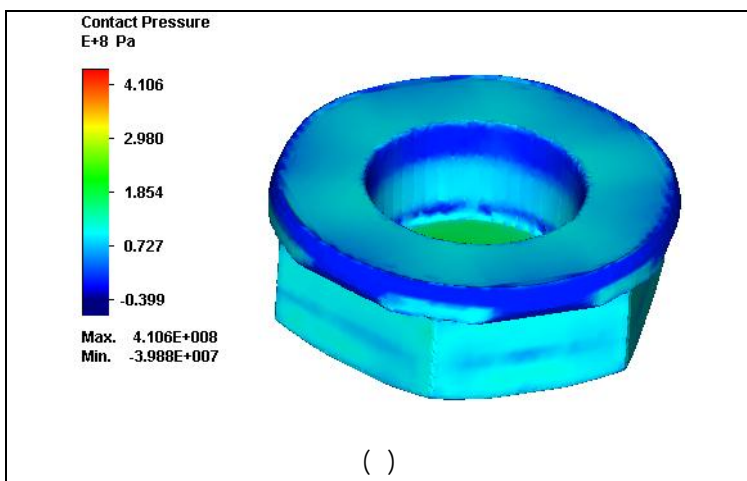
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