

# 자동차 엔진마운트의 온도에 따른 동특성 변화 해석 Analysis on the Dynamic characteristics to Temperature of Automotive Engine Mount.

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1.

$\sigma$ ,  $\epsilon$ ,  $c_1$ ,  $f$   
SBR

가

[2] SBR

Table 1

Table 1

(Monte Carlo Simulation)

2007

3

## 2. SBR

MSC/NASTRAN

SBR

Poisson

1080kg/m<sup>3</sup>

0.49

NASTRAN

(SOL108)

가

SBR

Figure 1

가

1000

Figure 2

4

(1)

$$\sigma = E_{\epsilon}^* = E(1 + i\eta)_{\epsilon}$$

$$E^* = \frac{a_0 + a_1 (if)^{\beta}}{1 + c_1 (if)^{\beta}} \quad (1)$$

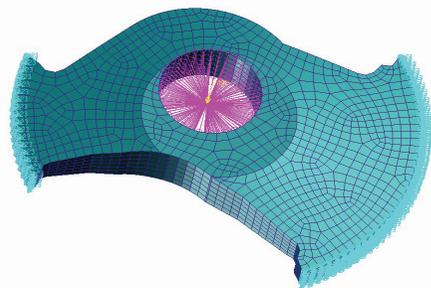


Figure 1 FE model of an automotive engine mount

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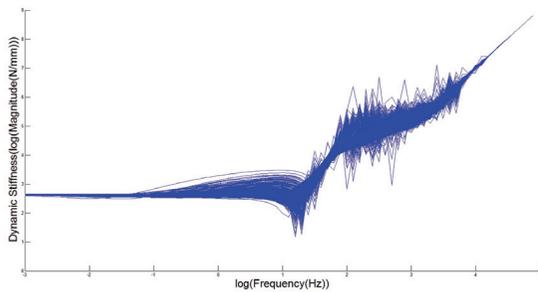
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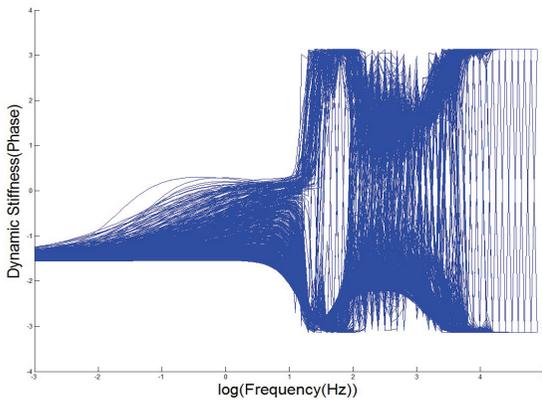
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**Table 1** Statistical Properties of Random Variables

| Random Variables    | Mean(Jone,2001)      | Standard Deviation |
|---------------------|----------------------|--------------------|
| Temp( )             | 13.28                | 9.79               |
| log( $\sigma_0$ )   | -1.118               | 1.265              |
| log( $\sigma_0$ )   | log(14.50(1+i0.05))  | 0.2155             |
| log( $\sigma_1$ )   | log(196.7(1+i0.018)) | 0.06047            |
| log( $c_1$ )        | log(0.0083)          | 0.06047            |
|                     | 0.38                 | 0.06780            |
| ( $\sigma_1, c_1$ ) | 0.6948               | -                  |

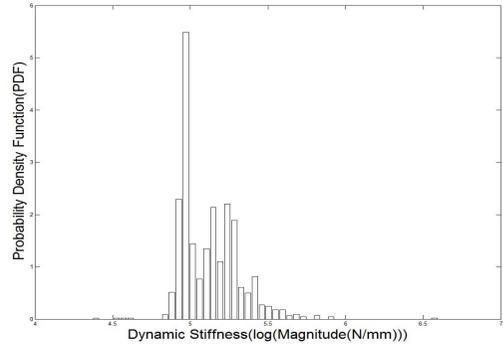


(a) Magnitude



(b) Phase

**Figure 2** Variability of dynamic stiffness in an engine mount due to temperature variation.



**Figure 3** Histogram of the dynamic stiffness magnitude at 1000Hz.

3.

2010 ( )

( 2010-0023464)

(1) Jones, D.I.G (2001) Handbook of viscoelastic vibration Damping, John Wiley & Sons, New York.

(2) (2) , (2011)

, 24 4 , pp. 383-389.

Figure 3

1000Hz