

(5) 가 . 가
 가 . 가
 가 .

Table 3 FE analysis cases in this study (80 cases).

Indenter dia. (mm)	Initial internal pressure (MPa)	Dent depth (mm)
40, 80, 160, 320	atmospheric pressure(0), 4, 8 16	19, 38, 76,114,152

3.

가
 indenter 1 Indenter
 가 .
 80mm 160mm 가
 0~16MPa 가
 가 indenter 3 가
 가 indenter 가
 indenter 3 가
 16MPa
 20%
 가 .
 가 .

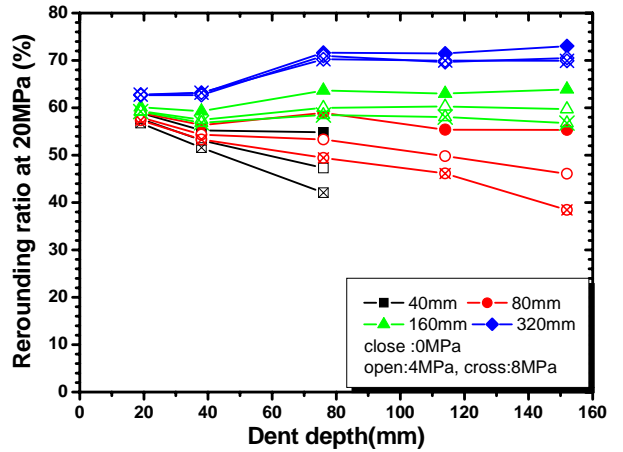


Fig. 2 Re-bounding ratio at 20 MPa with variation of internal pressure and indenter diameter

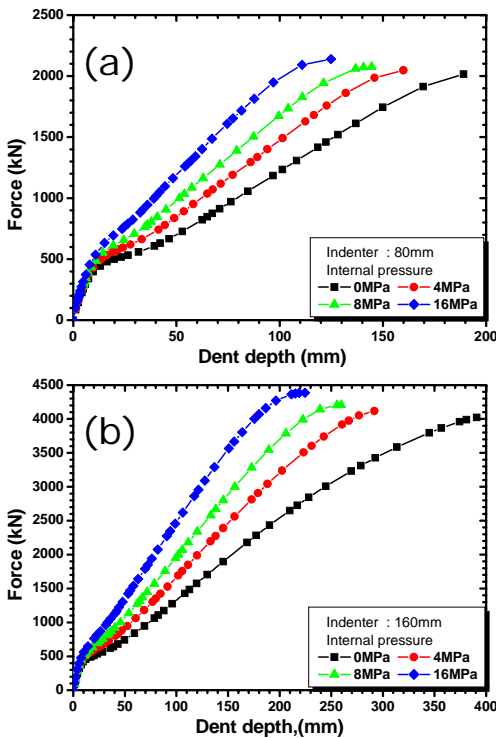


Fig. 1 Denting force with variation of internal pressure and indenter diameter.

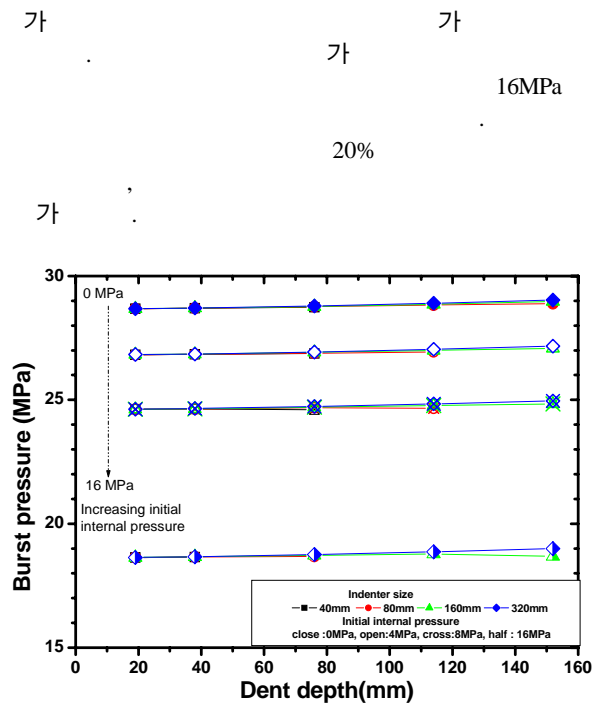


Fig. 3 Predicted burst pressure due to internal pressure in FE analysis.

4.

762 mm, 17.5mm API X65
 20% 가
 re-bounding in-
 denter 가 .

가
 20MPa
 re-bounding 2 re-bounding
 가 back-spring 가
 Indenter 가
 320mm indenter 가
 가 가
 가 가

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