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An ideal gas has an initial volume of $2.0 \times 10^{-3} \text{ m}^{-3}$ and at a pressure of $1.0 \times 10^5 \text{ Pa}$. When 125 J of energy is supplied to the gas, its volume increases to $2.5 \times 10^{-3} \text{ m}^{-3}$ while its pressure remains constant.

What is the change in internal energy?

A

50 J

B

-50 J

C

75 J

D

170 J