Interatomic Force Constant.

Behavior of solids with respect to external forces is such that if their atoms are connected to springs. When an external force is applied on a solid, this distance between its atoms changes and interatomic force works to restore the original dimension.

The ratio of interatomic force to that of change in interatomic distance is defined as the interatomic force constant. $K = \frac{F}{\Delta r}$

It is also given by $K = Y \times r_0$ [Where Y = Young's modulus, r_0 = Normal distance between the atoms of wire]

Unit of interatomic force constant is N/m and Dimension MT–2

Note: The number of atoms having interatomic distance r0 in length l of a wire, N = l/r0.

The number of atoms in area A of wire having interatomic separation r0 is $N = A / r_0^2$.