

## 4.3. Rigidity

When the LM Guide receives a load, its rolling element, LM blocks and LM rails are elastically deformed within a permissible load range. The ratio between the displacement and the load is called rigidity value (rigidity values are obtained using the equation shown below). The LM Guide's rigidity increases according to the magnitude of the preload. Fig. 1 shows rigidity difference between normal, C1 and C0 clearances.

The effect of a preload for a 4-way equal-load type is translated into the calculated load approx. 2.8 times greater than the magnitude of the preload.

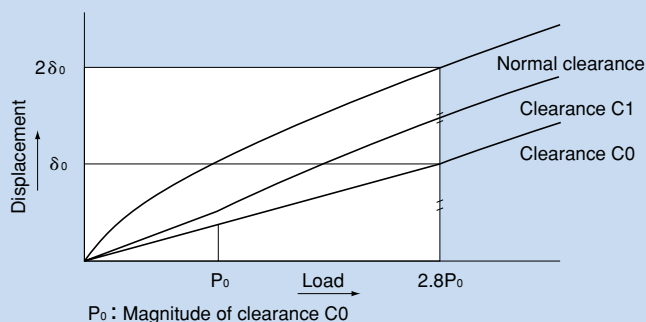


Fig. 1 Rigidity Data

$$K = \frac{P}{\delta} \quad (\text{N}/\mu\text{m})$$

K : Rigidity

$\delta$  : Displacement ( $\mu\text{m}$ )

P : Calculated load (N)