Extrusion Load Capacity Calculations

Deflection Calculations

The following pages assist in extrusion selection by providing a quick Load vs. Deflection Chart (below) and calculation formulas (right page). In general, load for aluminum frames is calculated assuming that both ends of the extrusion are supported.

**Example**

Step (1) Find a point (1) on the Y (Load) axis for the applied load P (Unit: N).

Step (2) Find a point (2) on the X (Length) axis for the extrusion length.

Step (3) Draw a horizontal line from (1) and a vertical line from (2), and name the intersection of the two as (3).

Step (4) Draw a horizontal line from (4), and draw a parallel line to the graph's diagonal lines from (3).

Step (5) Name the intersection of the lines as (5).

Step (6) Draw a line upwards from (5), and locate an intersection (6) corresponding to the extrusion support method used.

Result: According to the example values used and the calculation based on the values, the deflection amount would be 0.3mm when the extrusion is supported at both ends.

*1) Conversion: 1kgf=9.80665N  (Ex.) 81.6kgf=800N

**MISUMI** defines the Load Capacity (Max Allowable Load) to be a deflection 1/1000 of the extrusion length.

- Deflection Quick View Chart

The numbers in O correspond to the extrusion numbers on the left hand tables.

- Deflection Calculations

Example of No.4 as "Beam Supported on Both Ends"

When the selection is calculated as "Beam Supported on Both Ends"