where max stress, σ_{max}, is equal to the max fringe, N_{max}, multiplied by the material constant divided by the plate thickness and then normalized by the nominal stress, σ_n.

Experimental Parameters

Parameter	Symbol	Value	Units
Dog bone width	w_d	31.8±0.1	mm
Dog bone thickness	h_d	5.9±0.1	mm
Light wave-length	λ	589.3	nm
Voltage-force conv. factor	VC	265	Lb_f/Volt
Plate width	w_p	76.2±0.1	mm
Plate thickness	h_p	5.9±0.1	mm
Plate hole diameter	d	22.9±0.1	mm
Plate hole radius	a	11.5±0.1	mm

Table 1. Experimental parameters.

Experimental Uncertainty

	Uncertainty
Load Measurement	±20+0.04*Reading (N)
Caliper	±0.1 (mm)
Fringe intercept location	±5 (Pixels)
Fringe Number	±1

Table 2. The given and assumed uncertainty of the experiment.

Uncertainty propagation was done with root sum of square,

$$W_R = \sqrt{\left(\left(\frac{\partial R}{\partial R_i}\right) W_i\right)^2} \tag{13}$$

where W_i is the individual uncertainty multiplied by the partial derivatives of the resulting equation with respect to each of the individual variables.

Experimental Results