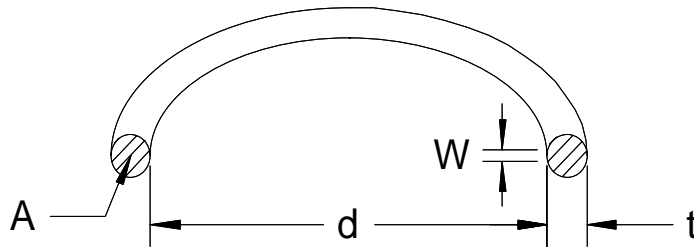


### Thin-Walled Ring, Non-Rectangular Cross-Section



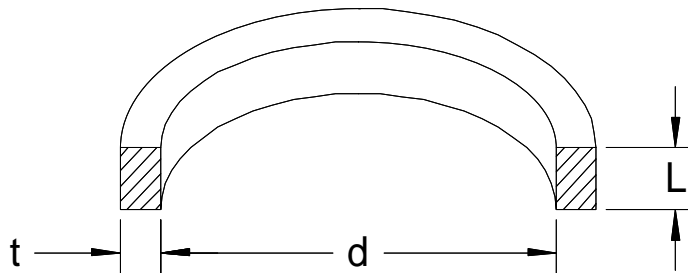
$$t < d / 10$$

$$P = 2 A \sigma / (d W)$$

$$S = 2 A \sigma / d$$

$$F = 2 \pi A \sigma$$

### Thin-Walled Ring, Rectangular Cross-Section



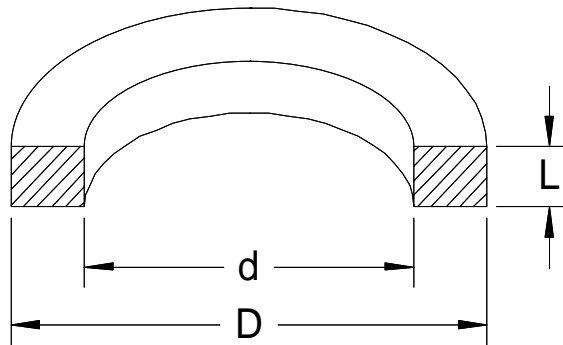
$$t < d / 10$$

$$P = 2 t \sigma / d$$

$$S = 2 t L \sigma / d$$

$$F = 2 \pi t L \sigma$$

### Thick-Walled Ring, Rectangular Cross-Section



$$P = \sigma \ln(D / d)$$

$$S = L \sigma \ln(D / d)$$

$$F = \pi d L \sigma \ln(D / d)$$

- P = radial contact pressure between ring & substrate (lb/sq in or MPa)
- S = radial force per length of circumference (lb/in or N/m)
- F = total radial force as tabulated on ring drawings (lb or N)
- W = width of contact between ring & substrate
- $\sigma$  = ring recovery stress, 30 kpsi (200 Mpa) for rough calculation. Stress is a function of temperature, materials & geometry. Consult Intrinsic Devices for application specific values.

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Product Document

### Clamping Force Calculation

| Drawing ID | Date    | Rev. | Page   |
|------------|---------|------|--------|
| PD 009     | 8/25/98 | D    | 1 of 1 |