Thin-Walled Ring, Non-Rectangular Cross-Section
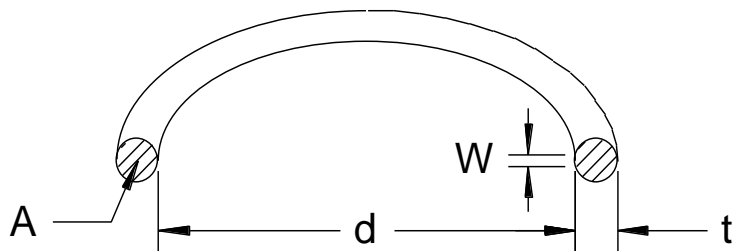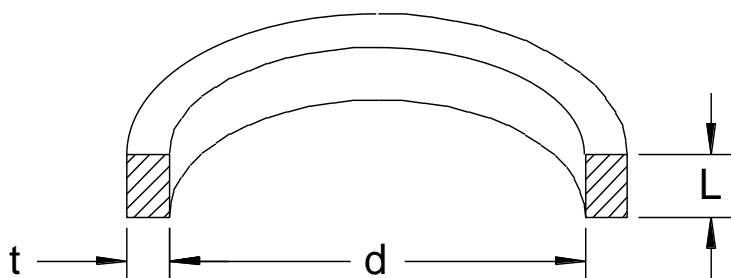

$t < d / 10$

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

Thin-Walled Ring, Rectangular Cross-Section
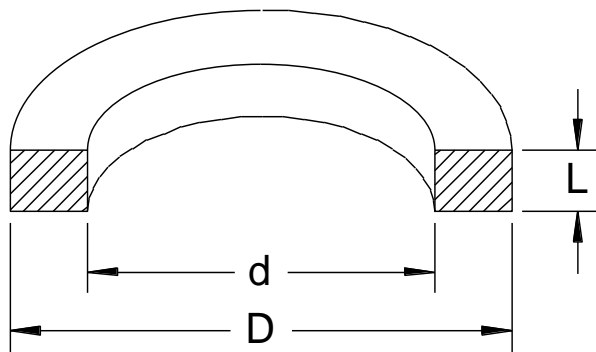

$t < d / 10$

$P = 2 t \sigma / d$
$S = 2 t L \sigma / d$
$F = 2 \pi t L \sigma$

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
σ = 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

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