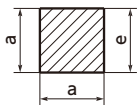
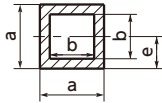
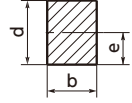
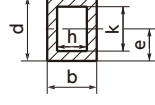
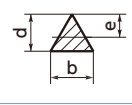
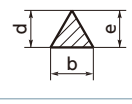
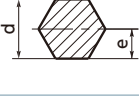
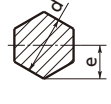
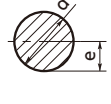
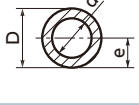
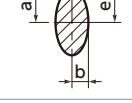
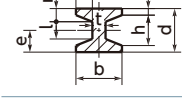


Second Moment of Area, Section Modulus, and Turning Radius of Cross Section

Shape of cross section	Cross section area A	Distance from neutral axis to farthest portion e	Second moment of area I	Section modulus $Z = \frac{I}{e}$	Rotation radius $p = \frac{\sqrt{I}}{A}$
	a^2	a	$\frac{a^4}{3}$	$\frac{a^3}{3}$	$\frac{a}{\sqrt{3}} = 0.577a$
	$a^2 - b^2$	$\frac{1}{2}a$	$\frac{a^4 - b^4}{12}$	$\frac{a^4 - b^4}{6a}$	$\sqrt{\frac{a^2 + b^2}{12}}$ $= 0.289\sqrt{a^2 + b^2}$
	bd	$\frac{1}{2}d$	$\frac{bd^3}{12}$	$\frac{bd^2}{6}$	$\frac{d}{\sqrt{12}} = 0.289d$
	bd - hk	$\frac{1}{2}d$	$\frac{bd^3 - hk^3}{12}$	$\frac{bd^3 - hk^3}{6d}$	$\sqrt{\frac{bd^3 - hk^3}{12(bd - hk)}}$ $= 0.289\sqrt{\frac{bd^3 - hk^3}{bd - hk}}$
	$\frac{1}{2}bd$	$\frac{2}{3}d$	$\frac{bd^3}{36}$	$\frac{bd^2}{24}$	$\frac{d}{\sqrt{18}} = 0.236d$
	$\frac{1}{2}bd$	d	$\frac{bd^3}{12}$	$\frac{bd^2}{12}$	$\frac{a}{\sqrt{6}} = 0.408d$
	$\frac{3d^2 \tan 30^\circ}{2} = 0.866d^2$	$\frac{d}{2}$	$\frac{A}{12} \left[\frac{d^2 (1 + 2\cos^2 30^\circ)}{4\cos^2 30^\circ} \right]$ $= 0.6d^4$		$\sqrt{\frac{d^2 (1 + 2\cos^2 30^\circ)}{48\cos^2 30^\circ}}$ $= 0.264d$
	$\frac{3d^2 \tan 30^\circ}{2} = 0.866d^2$	$\frac{d}{2\cos 30^\circ} = 0.577d$	$\frac{A}{12} \left[\frac{d^2 (1 + 2\cos^2 30^\circ)}{4\cos^2 30^\circ} \right]$ $= 0.6d^4$	$\frac{A}{6} \left[\frac{d (1 + 2\cos^2 30^\circ)}{4\cos^2 30^\circ} \right]$ $= 0.104d^3$	$\sqrt{\frac{d^2 (1 + 2\cos^2 30^\circ)}{48\cos^2 30^\circ}}$ $= 0.264d$
	$\frac{\pi d^2}{4} = 0.7854d^2$	$\frac{d}{2}$	$\frac{\pi d^4}{64} = 0.049d^4$	$\frac{\pi d^3}{32} = 0.098d^3$	$\frac{d}{4}$
	$\frac{\pi (D^2 - d^2)}{4}$ $= 0.7854(D^2 - d^2)$	$\frac{d}{2}$	$\frac{\pi (D^4 - d^4)}{64}$ $= 0.049(D^4 - d^4)$	$\frac{\pi (D^4 - d^4)}{32D}$ $= 0.098 \frac{D^4 - d^4}{D}$	$\frac{\sqrt{D^2 + d^2}}{4}$
	$\pi ab = 3.1416ab$	a	$\frac{\pi a^3 b}{4} = 0.7854a^3 b$	$\frac{\pi a^2 b}{4} = 0.7854a^2 b$	$\frac{a}{2}$
	dt + 2a(s + n)	$\frac{d}{2}$	where g = inclination of flange	$\frac{1}{6d} \left[bd^3 - \frac{1}{4g} (h^4 - l^4) \right]$	$\sqrt{\frac{1}{12} \left[bd^3 - \frac{1}{4g} (h^4 - l^4) \right]}$ $\frac{1}{dt + 2a(s + n)}$