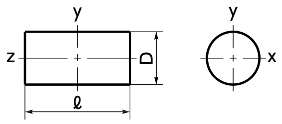
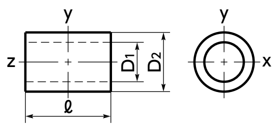
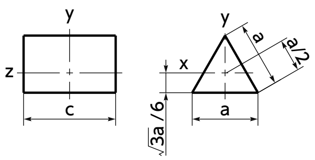
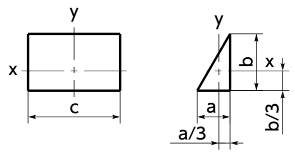
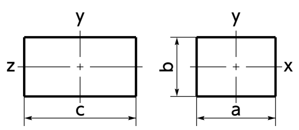
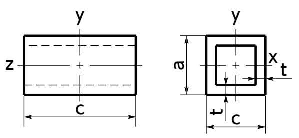
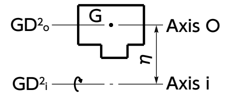
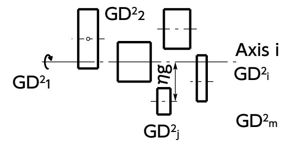
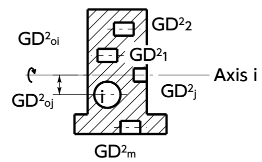
Formula regarding GD²

(The symbol r in the table is specific weight.)

Shape of object	W (weight) GD²
	$W=\frac{\pi}{4}rD^2l$ $GD^2_x=GD^2_y=W(\frac{D^2}{4}+\frac{l^2}{3})$ $GD^2_z=\frac{1}{2}WD^2$
	$W=\frac{\pi}{4}r(D_2^2-D_1^2)l$ $GD^2_x=GD^2_y=W\{\frac{(D_2^2+D_1^2)}{4}+\frac{l^2}{3}\}$ $GD^2_z=\frac{1}{2}W(D_2^2+D_1^2)$
	$W=\frac{\sqrt{3}}{4}ra^2c$ $GD^2_x=GD^2_y=\frac{1}{3}W(\frac{a^2}{2}+c^2)$ $GD^2_z=\frac{1}{3}Wa^2$
	$W=\frac{1}{2}rabc$ $GD^2_x=\frac{2}{3}W(\frac{b^2}{3}+\frac{c^2}{2})$ $GD^2_y=\frac{2}{3}W(\frac{a^2}{3}+\frac{c^2}{2})$ $GD^2_z=\frac{1}{9}W(a^2+b^2)$
	W = rabc $GD^2_x=\frac{1}{3}W(b^2+c^2)$ $GD^2_y=\frac{1}{3}W(c^2+a^2)$ $GD^2_z=\frac{1}{3}W(a^2+b^2)$
	W = 4rtc(a-t) $GD^2_x=GD^2_y=\frac{2}{3}W\{(a-t)^2+t^2+\frac{c^2}{2}\}$ $GD^2_z=\frac{3}{4}W\{(a-t)^2+t^2\}$

Shape of object	W (weight) GD²
Theorem of parallel axis for object in GD² 	$GD^2_i = GD_O^2+4W\eta^2$ GD^2_O: GD^2[kgf•m²] about axis O that passes the gravity center of an object GD^2_i : GD^2[kgf•m²] about axis i that is parallel to axis O and distant by η W : Weight of object[kgf] η : Distance between axis O and axis i [m]
Theorem of addition for object in GD² 	$GD^2_i=GD^2_1+GD^2_2+\cdots+GD^2_j+\cdots+GD^2_m$ $\sum_{j=1}^{m}GD^2_j$ GD^2_j : GD^2[kgf•m²] about the axis i of arbitrary object j m : Number of objects Note) When the central axis does not match axis i, obtain GD² about axis i of each object and add it in such methods as the theorem of parallel axis.
Theorem of subtraction for object in GD² 	$GD^2_i=GD^2_{oi}-(GD^2_1+GD^2_2+\cdots+GD^2_j+\cdots+GD^2_m)$ $GD^2_{oi}-\sum_{j=1}^{m}GD^2_j$ GD^2_{oj} : GD^2[kgf•m²] about axis i when no space room is assumed GD^2_j : GD^2[kgf•m²] about axis i of virtual objects when an arbitrary subspace is packed with these objects with identical specific weight
Basic relationship of GD², torque, shaft rotational speed and time	$T=\frac{GD^2}{375}\cdot\frac{(n-n_0)}{t}$ $n=\frac{375}{GD^2}Tt+n_0,\ t=\frac{GD^2}{375}\cdot\frac{(n-n_0)}{t}$ n : Shaft rotational speed[rpm] n0 : Initial shaft rotational speed [rpm] t : Time [sec] T : Torque[kgf•m](Acceleration+, deceleration-)
Motion energy of rotating body	$E=\frac{GD^2n^2}{7150}$ $E = 1.4 \times 10^{-4}GD^2n^2$ n: Shaft rotational speed [rpm]

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