

INPUT PARAMETERS

Ultimate tensile stress [N/m] *	7.50E+08								
Maximum deformation allowed [mm]	5								
Elastic module [N/m] *	9.00E+10								
Density [kg/m^3]*	1.60E+03								
Total mass [kg]	1.50								
Jump height [m]	0.1								
Impact displacement [m]	0.005								
Knee Length [m]	0.2126								
Hip Length [m]	0.2622								

TORQUE IN KNEE [N\*m]

TORQUE IN HIP [N\*m]

FORCE IN KNEE'S EXTREME [N]

FORCE IN HIP'S EXTREME [N]

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TUBES

r1 [mm]	r2 [mm]	Inertia moment [m^4]	Stress knee [N/m^2]	Stress Hip [N/m^2]	Knee's displacement in extreme [mm]	Hip's displacement in extreme [mm]	Mass Knee [g]	Mass Hip [g]
0.005	0.006	5.27E-10	7.12E+08	1.59E+09	19.87	19.87	11.76	14.50
0.006	0.007	8.68E-10	5.05E+08	1.13E+09	12.07	12.07	13.89	17.13
0.007	0.008	1.33E-09	3.76E+08	8.40E+08	7.87	7.87	16.03	19.77
0.008	0.009	1.94E-09	2.91E+08	6.50E+08	5.41	5.41	18.17	22.41
0.009	0.01	2.70E-09	2.32E+08	5.17E+08	3.88	3.88	20.30	25.04
0.011	0.0125	7.68E-09	1.02E+08	2.28E+08	1.36	1.36	37.67	46.46
0.0115	0.0125	5.44E-09	1.44E+08	3.21E+08	1.93	1.93	25.65	31.63
0.0135	0.015	1.37E-08	6.86E+07	1.53E+08	0.77	0.77	45.68	56.34
0.0185	0.02	3.37E-08	3.72E+07	8.30E+07	0.31	0.31	61.71	76.11

RODS

r [mm]	Inertia moment [m^4]	Stress knee [N/m^2]	Stress Hip [N/m^2]	Knee's displacement in extreme [mm]	Hip's displacement in extreme [mm]	Mass Knee [g]	Mass Hip [g]
0.0015	3.98E-12	2.36E+10	5.27E+10	2634.28	2634.28	2.40	2.97
0.002	1.26E-11	9.96E+09	2.22E+10	833.50	833.50	4.27	5.27
0.0025	3.07E-11	5.10E+09	1.14E+10	341.40	341.40	6.68	8.24
0.003	6.36E-11	2.95E+09	6.59E+09	164.64	164.64	9.62	11.86
0.005	4.91E-10	6.37E+08	1.42E+09	21.34	21.34	26.72	32.95
0.006	1.02E-09	3.69E+08	8.24E+08	10.29	10.29	38.47	47.45

BOXES

Interior side [mm]	Exterior side [mm]	Inertia moment [m^4]	Stress knee [N/m^2]	Stress Hip [N/m^2]	Knee's displacement in extreme [mm]	Hip's displacement in extreme [mm]	Mass Knee [g]	Mass Hip [g]
0.0025	0.004	1.81E-11	6.92E+09	1.55E+10	579.38	579.38	3.32	4.09
0.004	0.006	8.67E-11	2.17E+09	4.84E+09	120.85	120.85	6.80	8.39
0.007	0.008	1.41E-10	1.77E+09	3.96E+09	74.15	74.15	5.10	6.29
0.008	0.01	4.92E-10	6.36E+08	1.42E+09	21.29	21.29	12.25	15.10
0.017	0.02	6.37E-09	9.82E+07	2.19E+08	1.64	1.64	37.76	46.57

OPTIMAL KNEE'S PROFILE

OPTIMAL HIP'S PROFILE

Tube 20-18

Tube 20-18