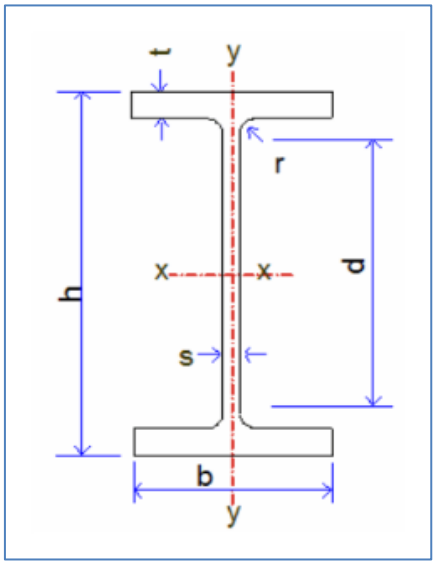
Shear, Moment, and Deflection of I Beam

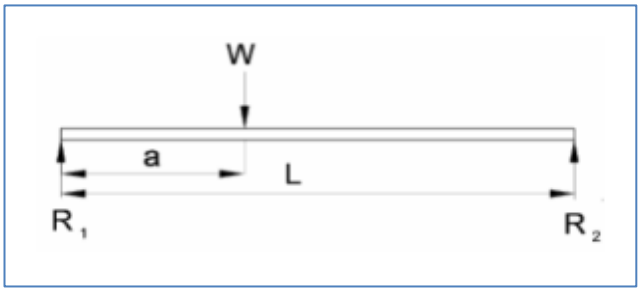
Input Variables	Value	Unit
top/bottom thickness	20.2	mm
height of I beam	903.3	mm
width of I beam	303.3	mm
vertical component thickness	15.1	mm
moment of intertia	325253	cm^4
modulus of elasticity	120	kN/mm^2
length of beam	15	m
distance to applied load	5	m
applied load	18	kN

Conditions at 1	Value	Unit
reaction Forces	12000	N
slope	-0.0064	
deflection	0	mm
moment	0	kN*m

Side View



Front View



position (m)	deflection (mm)	deflection derivative (mm/s)	deflect. 2nd derivative (mm/s^2)	Moment (kN*m)	deflect. 3rd derivative (mm/s^3)	Shear (kN)
0	0.000	-0.640	0.003	1.200	0.031	12.000
0.1	-0.064	-0.640	0.006	2.400	0.031	12.000
0.2	-0.128	-0.640	0.009	3.600	0.031	12.000
0.3	-0.192	-0.639	0.012	4.800	0.031	12.000
0.4	-0.256	-0.637	0.015	6.000	0.031	12.000
0.5	-0.320	-0.636	0.018	7.200	0.031	12.000
0.6	-0.383	-0.634	0.022	8.400	0.031	12.000
0.7	-0.447	-0.632	0.025	9.600	0.031	12.000
0.8	-0.510	-0.629	0.028	10.800	0.031	12.000
0.9	-0.573	-0.627	0.031	12.000	0.031	12.000
1	-0.635	-0.624	0.034	13.200	0.031	12.000
1.1	-0.698	-0.620	0.037	14.400	0.031	12.000
1.2	-0.760	-0.616	0.040	15.600	0.031	12.000
1.3	-0.821	-0.612	0.043	16.800	0.031	12.000
1.4	-0.883	-0.608	0.046	18.000	0.031	12.000
1.5	-0.943	-0.604	0.049	19.200	0.031	12.000
1.6	-1.004	-0.599	0.052	20.400	0.031	12.000
1.7	-1.064	-0.593	0.055	21.600	0.031	12.000
1.8	-1.123	-0.588	0.058	22.800	0.031	12.000
1.9	-1.182	-0.582	0.061	24.000	0.031	12.000
2	-1.240	-0.576	0.065	25.200	0.031	12.000
2.1	-1.298	-0.569	0.068	26.400	0.031	12.000
2.2	-1.355	-0.563	0.071	27.600	0.031	12.000
2.3	-1.411	-0.556	0.074	28.800	0.031	12.000
2.4	-1.466	-0.548	0.077	30.000	0.031	12.000
2.5	-1.521	-0.541	0.080	31.200	0.031	12.000
2.6	-1.575	-0.533	0.083	32.400	0.031	12.000
2.7	-1.629	-0.524	0.086	33.600	0.031	12.000
2.8	-1.681	-0.516	0.089	34.800	0.031	12.000
2.9	-1.733	-0.507	0.092	36.000	0.031	12.000
3	-1.783	-0.498	0.095	37.200	0.031	12.000
3.1	-1.833	-0.488	0.098	38.400	0.031	12.000
3.2	-1.882	-0.478	0.101	39.600	0.031	12.000
3.3	-1.930	-0.468	0.105	40.800	0.031	12.000
3.4	-1.976	-0.458	0.108	42.000	0.031	12.000
3.5	-2.022	-0.447	0.111	43.200	0.031	12.000
3.6	-2.067	-0.436	0.114	44.400	0.031	12.000
3.7	-2.110	-0.424	0.117	45.600	0.031	12.000
3.8	-2.153	-0.413	0.120	46.800	0.031	12.000
3.9	-2.194	-0.401	0.123	48.000	0.031	12.000
4	-2.234	-0.388	0.126	49.200	0.031	12.000
4.1	-2.273	-0.376	0.129	50.400	0.031	12.000
4.2	-2.311	-0.363	0.132	51.600	0.031	12.000

4.3	-2.347	-0.350	0.135	52.800	0.031	12.000
4.4	-2.382	-0.336	0.138	54.000	0.031	12.000
4.5	-2.415	-0.322	0.141	55.200	0.031	12.000
4.6	-2.448	-0.308	0.145	56.400	0.031	12.000
4.7	-2.478	-0.294	0.148	57.600	0.031	12.000
4.8	-2.508	-0.279	0.151	58.800	0.023	9.000
4.9	-2.536	-0.264	0.153	59.700	-0.008	-3.000
5	-2.562	-0.249	0.152	59.400	-0.015	-6.000
5.1	-2.587	-0.233	0.151	58.800	-0.015	-6.000
5.2	-2.610	-0.218	0.149	58.200	-0.015	-6.000
5.3	-2.632	-0.203	0.148	57.600	-0.015	-6.000
5.4	-2.652	-0.189	0.146	57.000	-0.015	-6.000
5.5	-2.671	-0.174	0.145	56.400	-0.015	-6.000
5.6	-2.689	-0.160	0.143	55.800	-0.015	-6.000
5.7	-2.705	-0.145	0.141	55.200	-0.015	-6.000
5.8	-2.719	-0.131	0.140	54.600	-0.015	-6.000
5.9	-2.732	-0.117	0.138	54.000	-0.015	-6.000
6	-2.744	-0.103	0.137	53.400	-0.015	-6.000
6.1	-2.754	-0.090	0.135	52.800	-0.015	-6.000
6.2	-2.763	-0.076	0.134	52.200	-0.015	-6.000
6.3	-2.771	-0.063	0.132	51.600	-0.015	-6.000
6.4	-2.777	-0.049	0.131	51.000	-0.015	-6.000
6.5	-2.782	-0.036	0.129	50.400	-0.015	-6.000
6.6	-2.786	-0.023	0.128	49.800	-0.015	-6.000
6.7	-2.788	-0.011	0.126	49.200	-0.015	-6.000
6.8	-2.789	0.002	0.125	48.600	-0.015	-6.000
6.9	-2.789	0.014	0.123	48.000	-0.015	-6.000
7	-2.788	0.027	0.121	47.400	-0.015	-6.000
7.1	-2.785	0.039	0.120	46.800	-0.015	-6.000
7.2	-2.781	0.051	0.118	46.200	-0.015	-6.000
7.3	-2.776	0.063	0.117	45.600	-0.015	-6.000
7.4	-2.770	0.074	0.115	45.000	-0.015	-6.000
7.5	-2.762	0.086	0.114	44.400	-0.015	-6.000
7.6	-2.754	0.097	0.112	43.800	-0.015	-6.000
7.7	-2.744	0.108	0.111	43.200	-0.015	-6.000
7.8	-2.733	0.119	0.109	42.600	-0.015	-6.000
7.9	-2.721	0.130	0.108	42.000	-0.015	-6.000
8	-2.708	0.141	0.106	41.400	-0.015	-6.000
8.1	-2.694	0.152	0.105	40.800	-0.015	-6.000
8.2	-2.679	0.162	0.103	40.200	-0.015	-6.000
8.3	-2.663	0.173	0.101	39.600	-0.015	-6.000
8.4	-2.645	0.183	0.100	39.000	-0.015	-6.000
8.5	-2.627	0.193	0.098	38.400	-0.015	-6.000
8.6	-2.608	0.202	0.097	37.800	-0.015	-6.000
8.7	-2.588	0.212	0.095	37.200	-0.015	-6.000
8.8	-2.566	0.222	0.094	36.600	-0.015	-6.000
8.9	-2.544	0.231	0.092	36.000	-0.015	-6.000

9	-2.521	0.240	0.091	35.400	-0.015	-6.000
9.1	-2.497	0.249	0.089	34.800	-0.015	-6.000
9.2	-2.472	0.258	0.088	34.200	-0.015	-6.000
9.3	-2.446	0.267	0.086	33.600	-0.015	-6.000
9.4	-2.420	0.276	0.085	33.000	-0.015	-6.000
9.5	-2.392	0.284	0.083	32.400	-0.015	-6.000
9.6	-2.364	0.292	0.081	31.800	-0.015	-6.000
9.7	-2.334	0.301	0.080	31.200	-0.015	-6.000
9.8	-2.304	0.309	0.078	30.600	-0.015	-6.000
9.9	-2.273	0.316	0.077	30.000	-0.015	-6.000
10	-2.242	0.324	0.075	29.400	-0.015	-6.000
10.1	-2.209	0.332	0.074	28.800	-0.015	-6.000
10.2	-2.176	0.339	0.072	28.200	-0.015	-6.000
10.3	-2.142	0.346	0.071	27.600	-0.015	-6.000
10.4	-2.108	0.353	0.069	27.000	-0.015	-6.000
10.5	-2.072	0.360	0.068	26.400	-0.015	-6.000
10.6	-2.036	0.367	0.066	25.800	-0.015	-6.000
10.7	-2.000	0.374	0.065	25.200	-0.015	-6.000
10.8	-1.962	0.380	0.063	24.600	-0.015	-6.000
10.9	-1.924	0.386	0.061	24.000	-0.015	-6.000
11	-1.886	0.392	0.060	23.400	-0.015	-6.000
11.1	-1.846	0.398	0.058	22.800	-0.015	-6.000
11.2	-1.807	0.404	0.057	22.200	-0.015	-6.000
11.3	-1.766	0.410	0.055	21.600	-0.015	-6.000
11.4	-1.725	0.416	0.054	21.000	-0.015	-6.000
11.5	-1.684	0.421	0.052	20.400	-0.015	-6.000
11.6	-1.642	0.426	0.051	19.800	-0.015	-6.000
11.7	-1.599	0.431	0.049	19.200	-0.015	-6.000
11.8	-1.556	0.436	0.048	18.600	-0.015	-6.000
11.9	-1.512	0.441	0.046	18.000	-0.015	-6.000
12	-1.468	0.446	0.045	17.400	-0.015	-6.000
12.1	-1.424	0.450	0.043	16.800	-0.015	-6.000
12.2	-1.379	0.454	0.042	16.200	-0.015	-6.000
12.3	-1.333	0.458	0.040	15.600	-0.015	-6.000
12.4	-1.287	0.462	0.038	15.000	-0.015	-6.000
12.5	-1.241	0.466	0.037	14.400	-0.015	-6.000
12.6	-1.194	0.470	0.035	13.800	-0.015	-6.000
12.7	-1.147	0.474	0.034	13.200	-0.015	-6.000
12.8	-1.100	0.477	0.032	12.600	-0.015	-6.000
12.9	-1.052	0.480	0.031	12.000	-0.015	-6.000
13	-1.004	0.483	0.029	11.400	-0.015	-6.000
13.1	-0.956	0.486	0.028	10.800	-0.015	-6.000
13.2	-0.907	0.489	0.026	10.200	-0.015	-6.000
13.3	-0.859	0.491	0.025	9.600	-0.015	-6.000
13.4	-0.809	0.494	0.023	9.000	-0.015	-6.000
13.5	-0.760	0.496	0.022	8.400	-0.015	-6.000
13.6	-0.710	0.498	0.020	7.800	-0.015	-6.000

13.7	-0.661	0.500	0.018	7.200	-0.015	-6.000
13.8	-0.610	0.502	0.017	6.600	-0.015	-6.000
13.9	-0.560	0.504	0.015	6.000	-0.015	-6.000
14	-0.510	0.505	0.014	5.400	-0.015	-6.000
14.1	-0.459	0.507	0.012	4.800	-0.015	-6.000
14.2	-0.409	0.508	0.011	4.200	-0.015	-6.000
14.3	-0.358	0.509	0.009	3.600	-0.015	-6.000
14.4	-0.307	0.510	0.008	3.000	-0.015	-6.000
14.5	-0.256	0.511	0.006	2.400	-0.015	-6.000
14.6	-0.205	0.511	0.005	1.800	-0.015	-6.000
14.7	-0.154	0.512	0.003	1.200	-0.015	-6.000
14.8	-0.102	0.512	0.002	0.600	-0.015	-5.972
14.9	-0.051	0.512	0.001	0.390	-0.015	-5.972
15	0.000	0.512	0.000	0.000	-0.015	-5.972