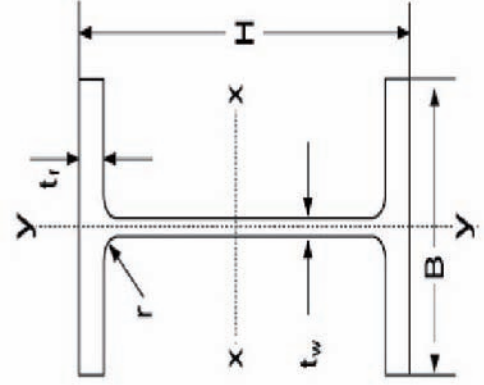


SECTIONAL PROPERTIES

Narrow Parallel Flange Beams as per IS 12778 / (DIN 1025)

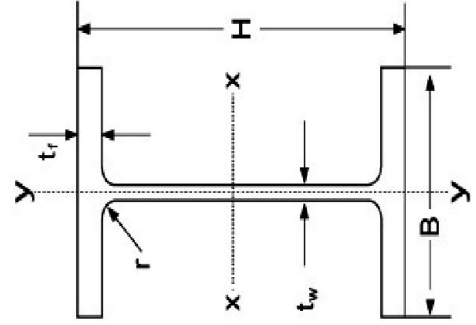
Beam (NPB)	Mass		Dimensions				Sectional Properties									
	M	A	Depth	Width	Web Thick	Flange Thick	Root Rad	Moment of Inertia		Radius of Gyration		Section Modulus		Plastic Section Modulus		
								I_x	I_y	r_x	r_y	Z_x	Z_y	Z_{px}	Z_{py}	
kg/m	cm ²	mm	mm	mm	mm	mm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ³	cm ³
NPB 100X55	8.10	10.32	100	55	4.1	5.7	7	171.01	15.92	4.07	1.24	34.20	5.79	39.41	9.15	
NPB 120X60	10.37	13.21	120	64	4.4	6.3	7	317.75	27.67	4.90	1.45	52.96	8.65	60.73	13.58	
NPB 140X70	12.90	16.43	140	73	4.7	6.9	7	541.22	44.92	5.74	1.65	77.32	12.31	88.35	19.25	
NPB 160X80	15.77	20.09	160	82	5	7.4	9	869.29	68.31	6.58	1.84	108.66	16.66	123.87	26.10	
NPB 180X90	15.37	19.58	177	91	4.3	6.5	9	1062.74	81.89	7.37	2.05	120.08	18.00	135.34	27.96	
NPB 180X90	18.80	23.95	180	91	5.3	8	9	1316.96	100.85	7.42	2.05	146.33	22.16	166.42	34.60	
NPB 180X90	21.27	27.10	182	92	6	9	9	1505.23	117.29	7.45	2.08	165.41	25.50	189.16	39.91	
NPB 200X100	18.43	23.47	197	100	4.5	7	12	1591.47	117.17	8.23	2.23	161.57	23.43	181.67	36.54	
NPB 200X100	22.36	28.49	200	100	5.6	8.5	12	1943.17	142.37	8.26	2.24	194.32	28.47	220.66	44.62	
NPB 200X100	25.09	31.96	202	102	6.2	9.5	12	2211.05	168.86	8.32	2.30	218.92	33.11	249.44	51.90	
NPB 200X130	27.37	34.87	207	133	5.8	8.5	12	2665.50	334.05	8.74	3.10	257.54	50.23	288.18	77.47	
NPB 200X130	31.56	40.20	210	134	6.4	10	12	3153.46	401.92	8.86	3.16	300.33	59.99	337.19	92.46	
NPB 200X150	30.46	38.80	194	150	6	9	12	2674.64	507.03	8.30	3.62	275.74	67.60	306.78	103.54	
NPB 200X165	35.69	45.46	201	165	6.2	10	12	3414.20	749.52	8.67	4.06	339.72	90.85	376.80	138.58	
NPB 200X165	42.48	54.11	205	166	7.2	12	12	4165.96	915.97	8.77	4.11	406.43	110.36	454.30	168.46	
NPB 200X165	48.00	61.14	210	166	6.5	14.5	12	5024.83	1106.37	9.07	4.25	478.56	133.30	534.68	202.43	



SECTIONAL PROPERTIES

Narrow Parallel Flange Beams as per IS 12778 / (DIN 1025)

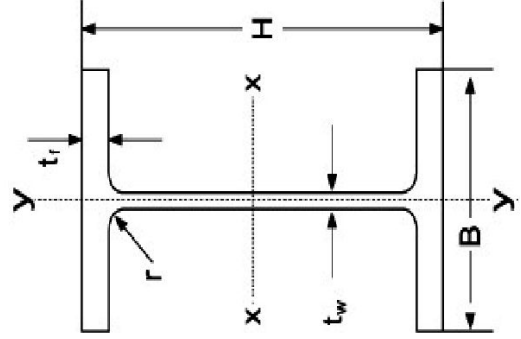
Beam (NPB)	Mass kg/m	Area cm ²	Dimensions				Sectional Properties									
			Depth H mm	Width B mm	Web Thick t _w mm	Flange Thick t _f mm	Root Rad r mm	Moment of Inertia		Radius of Gyration		Section Modulus		Plastic Section Modulus		
								I _x cm ⁴	I _y cm ⁴	r _x cm	r _y cm	Z _x cm ³	Z _y cm ³	Z _{px} cm ³	Z _{py} cm ³	
NPB 220X110	22.18	28.26	217	110	5	7.7	12	2316.51	171.42	9.05	2.46	213.50	31.17	240.23	48.49	
NPB 220X110	26.20	33.37	220	110	5.9	9.2	12	2771.84	204.89	9.11	2.48	251.99	37.25	285.43	58.11	
NPB 220X110	29.35	37.39	222	112	6.6	10.2	12	3134.05	239.83	9.16	2.53	282.35	42.83	321.17	66.91	
NPB 240X120	26.15	33.32	237	120	5.2	8.3	15	3290.46	240.13	9.94	2.68	277.68	40.02	311.61	62.41	
NPB 240X120 (IPE 240)	30.71	39.12	240	120	6.2	9.8	15	3891.62	283.63	9.97	2.69	324.30	47.27	366.68	73.93	
NPB 240X120	34.32	43.72	242	122	7	10.8	15	4369.26	328.54	10.00	2.74	361.10	53.86	410.31	84.40	
NPB 250X125	30.11	38.36	250	125	6	9	15	4138.18	294.32	10.39	2.77	331.05	47.09	373.65	73.63	
NPB 250X150	34.08	43.41	258	146	6.1	9.2	15	5120.46	478.59	10.86	3.32	396.94	65.56	444.26	101.53	
NPB 250X150	39.78	50.68	262	147	6.6	11.2	15	6200.00	594.53	11.06	3.43	473.28	80.89	530.17	124.91	
NPB 250X150	46.49	59.22	266	148	7.6	13.2	15	7381.40	715.21	11.16	3.48	554.99	96.65	625.47	149.41	
NPB 250X175	43.94	55.98	244	175	7	11	15	6091.39	984.25	10.43	4.19	499.29	112.49	555.60	172.49	
NPB 270X135	30.74	39.15	267	135	5.5	8.7	15	4917.29	357.97	11.21	3.02	368.34	53.03	412.53	82.35	
NPB 270X135 (IPE 270)	36.07	45.95	270	135	6.6	10.2	15	5789.78	419.87	11.23	3.02	428.87	62.20	484.04	96.96	
NPB 270X135	42.26	53.84	274	136	7.5	12.2	15	6947.04	513.48	11.36	3.09	507.08	75.51	574.69	117.71	



SECTIONAL PROPERTIES

Narrow Parallel Flange Beams as per IS 12778 / (DIN 1025)

Beam (NPB)	Mass M kg/m	Area A cm ²	Dimensions				Sectional Properties								
			Depth H mm	Width B mm	Web Thick t _w mm	Flange Thick t _f mm	Root Rad r mm	Moment of Inertia		Radius of Gyration		Section Modulus		Plastic Section Modulus	
								I _x cm ⁴	I _y cm ⁴	r _x cm	r _y cm	Z _x cm ³	Z _y cm ³	Z _{px} cm ³	Z _{py} cm ³
NPB 300X150 (IPE 300)	36.53	46.53	297	150	6.1	9.2	15	7173.49	518.97	12.42	3.34	483.06	69.20	541.83	107.33
NPB 300X150 (IPE 300)	42.25	53.82	300	150	7.1	10.7	15	8356.10	603.78	12.46	3.35	557.07	80.50	628.40	125.23
NPB 300X150 (IPE 300)	49.32	62.83	304	152	8	12.7	15	9994.20	745.72	12.61	3.45	657.51	98.12	743.86	152.59
NPB 300X165	39.88	50.80	310	165	5.8	9.7	15	8794.62	727.61	13.16	3.78	567.40	88.19	630.54	135.70
NPB 300X165	45.76	58.30	313	166	6.6	11.2	15	10210.04	855.57	13.23	3.83	652.40	103.08	727.91	158.77
NPB 300X165	53.47	68.11	317	167	7.6	13.2	15	12122.66	1026.84	13.34	3.88	764.84	122.98	857.61	189.65
NPB 350X250	79.18	100.87	340	250	9	14	18	21530.29	3650.06	14.61	6.02	1266.49	292.01	1402.36	446.20
NPB 400X180 (IPE 400)	57.38	73.10	397	180	7	12	21	20292.57	1170.59	16.66	4.00	1022.30	130.07	1144.02	202.09
NPB 400X180 (IPE 400)	66.31	84.47	400	180	8.6	13.5	21	23128.35	1317.82	16.55	3.95	1156.42	146.42	1307.26	229.02
NPB 400X180 (IPE 400)	75.66	96.39	404	182	9.7	15.5	21	26747.02	1564.25	16.66	4.03	1324.11	171.90	1502.29	269.11



SECTIONAL PROPERTIES

Narrow Parallel Flange Beams as per IS 12778 / (DIN 1025)

Beam (NPB)	Mass kg/m	Area cm ²	Dimensions				Sectional Properties								
			Depth H mm	Width B mm	Web Thick t _w mm	Flange Thick t _f mm	Root Rad r mm	Moment of Inertia		Radius of Gyration		Section Modulus		Plastic Section Modulus	
								I _x cm ⁴	I _y cm ⁴	r _x cm	r _y cm	Z _x cm ³	Z _y cm ³	Z _{px} cm ³	Z _{py} cm ³
NPB 400X200	67.28	85.71	400	200	8	13	21	24223.63	1738.37	16.81	4.50	1211.18	173.84	1355.08	269.29
NPB 450X190 (IPE 450)	67.15	85.55	447	190	7.6	13.1	21	29758.80	1502.40	18.65	4.19	1331.49	158.15	1494.42	245.76
NPB 450X190 (IPE 450)	77.58	98.83	450	190	9.4	14.6	21	33742.91	1675.86	18.48	4.12	1499.69	176.41	1701.93	276.40
NPB 450X190 (IPE 450)	92.36	117.66	456	192	11	17.6	21	40923.40	2085.36	18.65	4.21	1794.89	217.23	2046.40	341.01
NPB 500X200 (IPE 500)	79.36	101.10	497	200	8.4	14.5	21	42933.41	1939.22	20.61	4.38	1727.70	193.92	1946.16	301.64
NPB 500X200 (IPE 500)	90.69	115.53	500	200	10.2	16	21	48198.50	2141.68	20.43	4.31	1927.94	214.17	2194.27	335.90
NPB 500X200 (IPE 500)	107.31	136.71	506	202	12	19	21	57777.26	2621.75	20.56	4.38	2283.69	259.58	2613.13	408.55
NPB 550X210 (IPE 550)	105.52	134.43	550	210	11.1	17.2	24	67116.46	2667.58	22.34	4.45	2440.60	254.06	2787.22	400.56
NPB 600X220 (IPE 600)	107.56	137.03	597	220	9.8	17.5	24	82918.80	3116.28	24.60	4.77	2777.85	283.30	3141.42	442.09
NPB 600X220 (IPE 600)	122.45	155.99	600	220	12	19	24	92083.40	3387.34	24.30	4.66	3069.45	307.94	3512.64	485.68
NPB 600X220 (IPE 600)	154.46	196.77	610	224	15	24	24	118302.06	4520.75	24.52	4.79	3878.76	403.64	4471.27	640.11
NPB 750X270 (IPE 750)	145.29	185.08	750	265	13.2	16.6	17	161957.86	5165.33	29.58	5.28	4318.88	389.84	5009.90	616.68
NPB 750X270 (IPE 750)	174.54	222.34	760	270	14.4	21.6	17	206350.6	7106.97	30.46	5.65	5430.28	526.44	6244.16	827.22
NPB 750X270 (IPE 750)	202.48	257.95	770	270	15.6	26.6	17	249536.79	8752.39	31.10	5.83	6481.48	648.33	7431.05	1016.07