Compare RSJ sections

RSJ.info · Calculation inputs

All 15 listed UB sections. Support-centre span 4 m. Uniform service load 12 kN/m. Model adds beam self-weight. Deflection target L/360. Simply supported beam under uniform service load. Source: British Steel UB datasheet, 21 July 2026.

Methods and sources: rsj.info/reference/steel-sections/

Planning estimate. Structural work requires a chartered structural engineer and the applicable Building Control approval.

Section comparison — no size recommendation

Service-load results at 4 m; selected deflection target L/360

Section	Total kN/m	Moment kNm	Reaction per support kN	Elastic stress N/mm²	Deflection mm	Target mm	Deflection comparison only
152x89x16	12.157	24.31	24.31	222.1	23.14	11.11	Exceeds selected target
178x102x19	12.186	24.37	24.37	159.8	14.27	11.11	Exceeds selected target
203x102x23	12.227	24.45	24.45	118.0	9.22	11.11	Within selected target
203x133x25	12.246	24.49	24.49	106.3	8.31	11.11	Within selected target
203x133x30	12.294	24.59	24.59	87.8	6.74	11.11	Within selected target
254x102x25	12.247	24.49	24.49	92.2	5.69	11.11	Within selected target
254x146x31	12.305	24.61	24.61	70.1	4.43	11.11	Within selected target
254x146x37	12.363	24.73	24.73	57.2	3.54	11.11	Within selected target
305x127x37	12.363	24.73	24.73	52.5	2.74	11.11	Within selected target
305x165x40	12.395	24.79	24.79	44.2	2.31	11.11	Within selected target
305x165x46	12.452	24.90	24.90	38.6	2.00	11.11	Within selected target
356x171x45	12.441	24.88	24.88	35.9	1.62	11.11	Within selected target
356x171x51	12.500	25.00	25.00	31.1	1.39	11.11	Within selected target
406x178x54	12.531	25.06	25.06	26.7	1.05	11.11	Within selected target
457x191x67	12.658	25.32	25.32	19.4	0.68	11.11	Within selected target

Stress is a calculated elastic value, not a verified strength check. Beyond elastic behaviour this model is not valid. No load factors, buckling, shear resistance, connections, bearings, fire resistance, vibration or point loads are checked.