

2 GEOMETRICAL DETAILS

2.1 Standard parameters

Steel Grades

- | | |
|-------------------------------|--|
| (a) Supported members | Grade 300 to AS 3679 Part 1 (Ref. 9)
Grade 300 to AS 3679 Part 2 (Ref. 9) |
| (b) Flat bar strip components | Grade 300 to AS 3679 Part 1 (Ref. 9) |
| (c) Plate components | Grade 250 to AS 3678 (Ref. 10) |

Bolts

24 or 20 mm high strength structural bolts to AS 1252 (Ref. 11)

22 mm diameter holes (M20), 26 mm diameter holes (M24)

Welds

5 mm, 6 mm, 8 mm or 10 mm fillet welds OR full penetration butt welds

E48XX or W50X welding electrodes to the relevant Australian Standard (Refs 12, 13, 14, 15)

Hole geometry

Bolt pitch 70 mm (M20), 80 mm (M24)

Bolt gauge see Sections 2.4 and 2.6

End plates

Grade 250 plate of various width/thickness combinations (see Section 2.2)

Column stiffeners

Grade 250 plate or Grade 300 flat bars (see Section 2.3)

Flange cover plates for splices

Grade 250 plate of various width/thickness combinations (see Section 2.5) although in some instances suitable width/thickness combinations are available which means that a flat bar can be substituted.



2 GEOMETRICAL DETAILS

2.2 Connection components— Bolted moment end plate

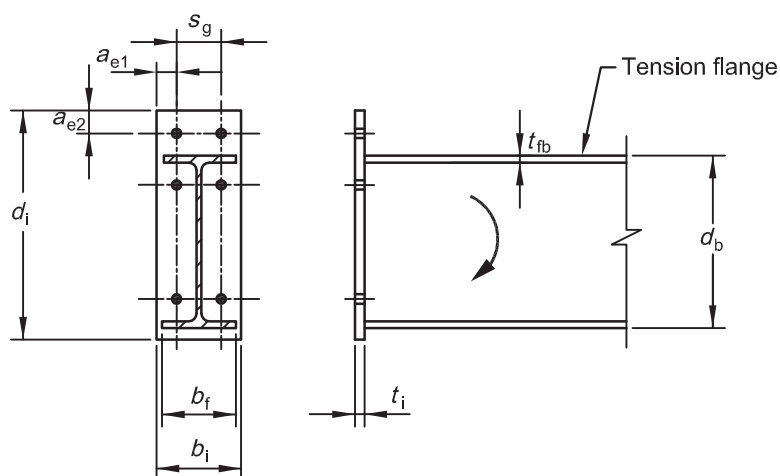
Bolted moment end plates are cut from Grade 250 plate to AS 3678 (Reference 10). Mechanical properties of thicknesses typically used are:

Yield stress = 250 MPa

Tensile strength = 410 MPa

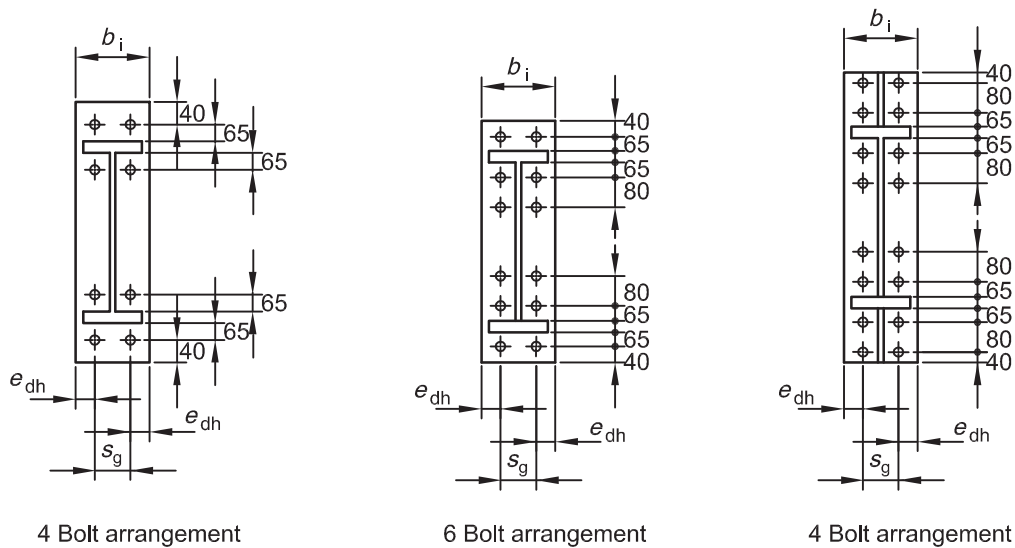
Plate width/bolt gauge/plate thickness combinations used are shown in Table 1. Typical bolt arrangements are shown in Figures 7 and 8.

TABLE 1
CONNECTION COMPONENTS
BOLTED MOMENT END PLATE



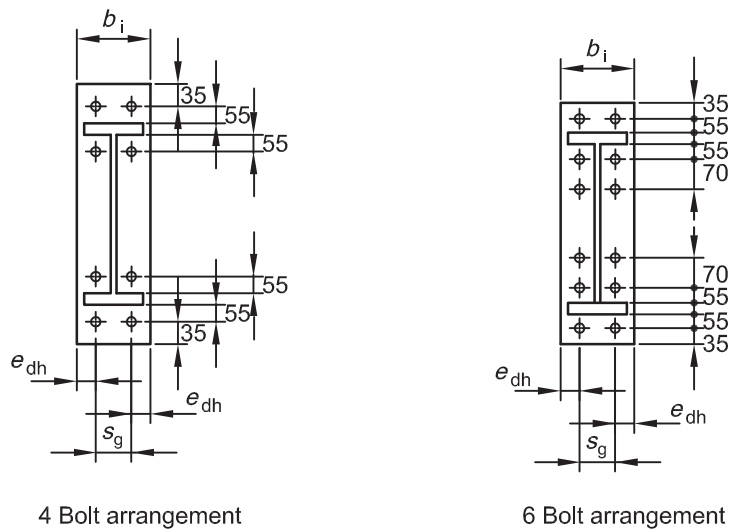
Section Grade 300	Plate width b_i mm		Bolt gauge s_g mm		Thicknesses t_i mm
	M24 bolts	M20 bolts	M24 bolts	M20 bolts	
900WB257	420		170		32, 28, 25
900WB218	370		170		32, 28, 25
900WB175	320		170		32, 28, 25
800WB192	320		170		32, 28, 25
800WB168	300		170		32, 28, 25
800WB146	300		170		32, 28, 25
800WB122	270		170		32, 28, 25
700WB173	300		170		32, 28, 25
700WB150	270		170		32, 28, 25
700WB130	270		170		32, 28, 25
700WB115	270		170		32, 28, 25
610UB	250	250	170	150	32, 28, 25
530UB	230	230	150	150	32, 28, 25, 20
460UB	220	210	140	140	32, 28, 25, 20
410UB	220	200	140	130	32, 28, 25, 20
360UB	220	200	140	120	28, 25, 20
310UB	220	190	140	120	28, 25, 20
250UB		180		120	25, 20
200UB		180		120	25, 20, 16





NOTE: Horizontal edge distance $e_{dh} = (b_i - s_g) / 2$; different for each section size but always ≥ 36 mm

FIGURE 7 BOLTING LAYOUTS FOR M24 BOLTS IN BOLTED MOMENT END PLATE



NOTE: Horizontal edge distance $e_{dh} = (b_i - s_g) / 2$; different for each section size but always ≥ 30 mm

FIGURE 8 BOLTING LAYOUTS FOR M20 BOLTS IN BOLTED MOMENT END PLATE



Design capacity tables for structural steel
Volume 4: Rigid connections—Open sections

by

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Design Guide 10: Bolted end plate beam splice connections

Design Guide 11: Welded beam to column moment connections

Design Guide 12: Bolted end plate to column moment connections

Design Guide 13: Splice connections

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