

SECTION 7

WORKMANSHIP - ACCURACY OF FABRICATION

7.1 PERMITTED DEVIATIONS

Permitted deviations in cross section, length, straightness, flatness, cutting, holing and position of fittings shall be as specified in 7.2 to 7.5 below.

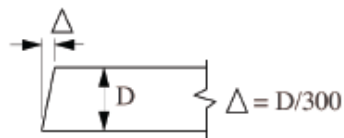
7.2 PERMITTED DEVIATIONS FOR ROLLED COMPONENTS AFTER FABRICATION (Δ) (including structural hollow sections)

7.2.1 Cross section after fabrication

In accordance with the appropriate tolerances standard given in Table 2.1

7.2.2 Squareness of ends not prepared for bearing

Note: See also 4.3.3

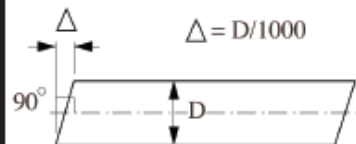


Plan or elevation of end

7.2.3 Squareness of ends prepared for bearing

Prepare ends with respect to the longitudinal axis of the member.

Note: See also 4.3.3

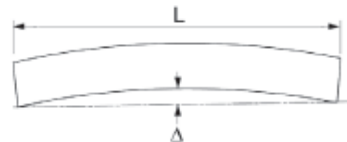


Plan or elevation

7.2.4 Straightness on both axes

Generally $\Delta = L/1000$ or 3mm whichever is greater.

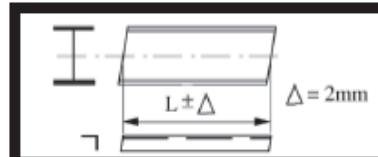
For components fabricated from structural hollow sections $\Delta = L/500$ or 3mm whichever is greater.



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7.2.5 Length

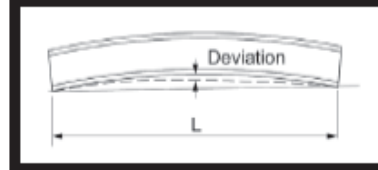
Length after cutting, measured on the centre line of the section or on the corner of angles.



7.2.6 Curved or cambered

Deviation from intended curve or camber at mid-length of curved portion when measured with web horizontal.

Deviation = $L/1000$ or 6mm whichever is greater.



7.3 PERMITTED DEVIATIONS FOR ELEMENTS OF FABRICATED COMPONENTS (Δ)

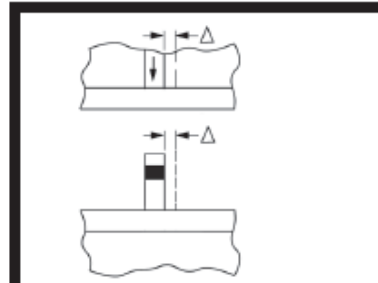
7.3.1 Position of fittings

The deviation from the intended position relative to the setting-out point on the primary member shall not exceed Δ .

Fittings and attachments whose location is critical to the force path in the structure:

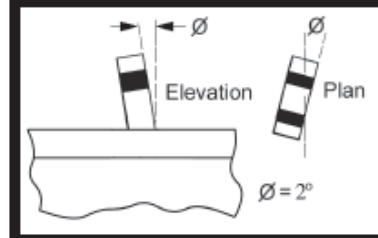
$\Delta = 3\text{mm}$

Other fittings and attachments: $\Delta = 5\text{mm}$



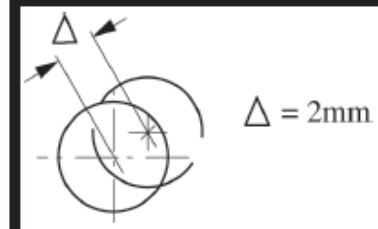
7.3.2 Alignment of fittings

Angular deviation \emptyset relative to intended local orientation.



7.3.3 Position of holes

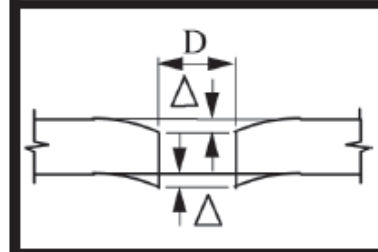
The deviation from the intended position of an isolated hole, also within a group of holes, the relative position to each other shall not exceed Δ .



7.3.4 Punched holes

The distortion caused by a punched hole shall not exceed Δ .

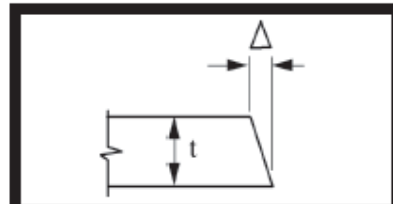
$\Delta = D/10$ or 1mm whichever is greater.



7.3.5 Sheared or cropped edges of plates or angles

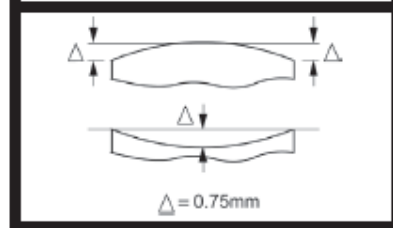
The deviation from a 90° edge shall not exceed Δ

$\Delta = t/10$ up to a maximum of 3mm.



7.3.6 Flatness

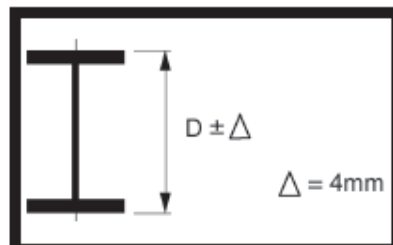
Where full contact bearing is specified, the flatness shall be such that when measured against a straight edge not exceeding one metre long, which is laid against the full bearing surface in any direction, the gap does not exceed Δ



7.4 PERMITTED DEVIATIONS FOR PLATE GIRDER SECTIONS (Δ)

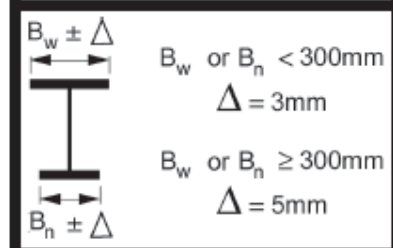
7.4.1 Depth

Depth on centre line.



7.4.2 Flange width

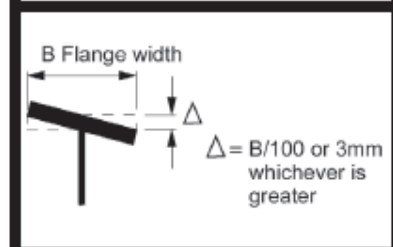
Width of B_w or B_n .



7.4.3 Squareness of section

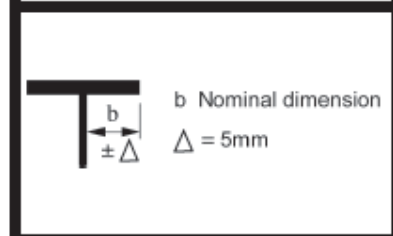
Out of squareness of flanges.

$\Delta = B/100$ or 3mm whichever is greater.



7.4.4 Web eccentricity

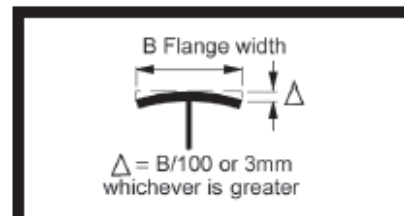
Position of web from edge of flange.



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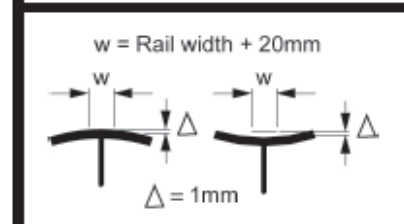
7.4.5 Flanges

Out of flatness.



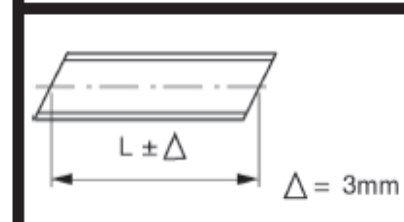
7.4.6 Top flange of crane girder

Out of flatness where the rail seats.



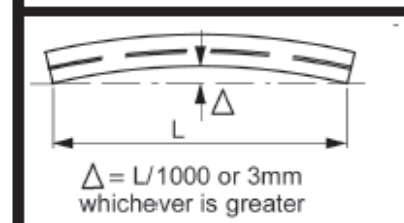
7.4.7 Length

Length on centre line.



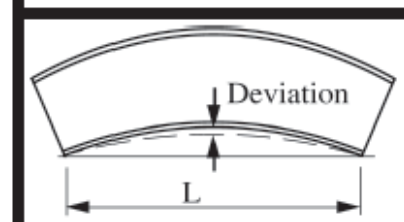
7.4.8 Flange straightness

Straightness of individual flanges.



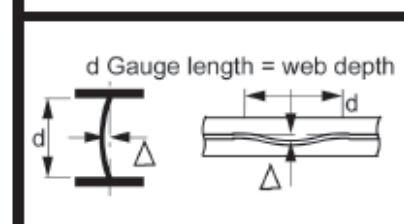
7.4.9 Curved or cambered

Deviation from intended curve or camber at mid-length of curved portion when measured with the web horizontal.
Deviation = $L/1000$ or 6mm whichever is greater.



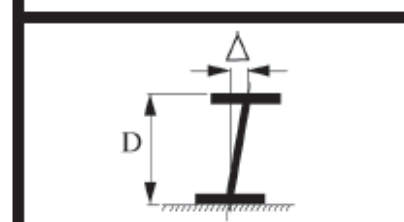
7.4.10 Web distortion

Distortion on web depth or gauge length.
 $\Delta = d/150$ or 3mm whichever is greater.



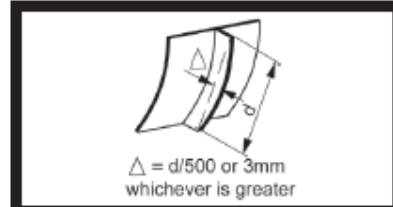
7.4.11 Cross section at bearings

Squareness of flanges to web.
 $\Delta = D/300$ or 3mm whichever is greater.



7.4.12 Web stiffeners

Straightness of stiffener out of plane with web after welding.



7.4.13 Web stiffeners

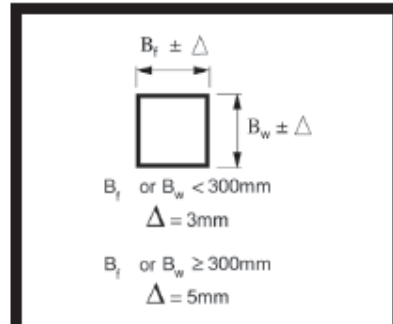
Straightness of stiffener in plane with web after welding.



7.5 PERMITTED DEVIATIONS FOR BOX SECTIONS (Δ)

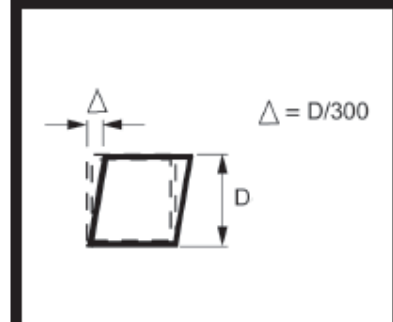
7.5.1 Plate widths

Width of B_f or B_w .



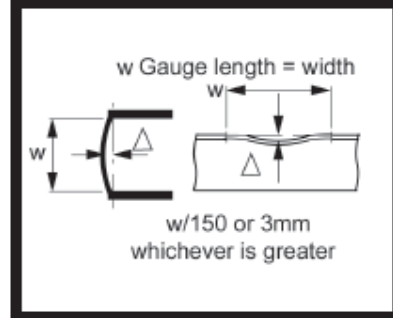
7.5.2 Squareness

Squareness at diaphragm positions.



7.5.3 Plate distortion

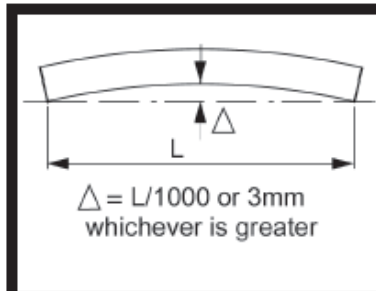
Distortion on width or gauge length.



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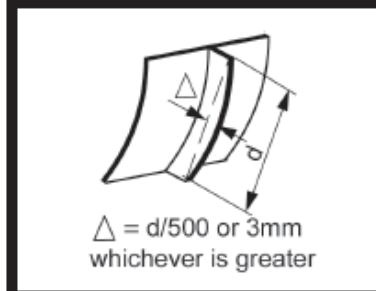
7.5.4 Web or flange straightness

Straightness of individual web or flanges.



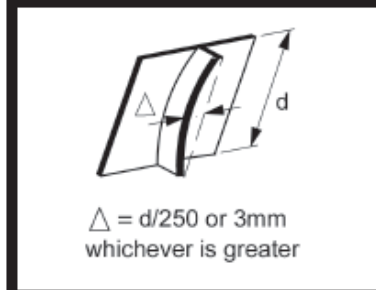
7.5.5 Web stiffeners

Straightness in plane with plate after welding.



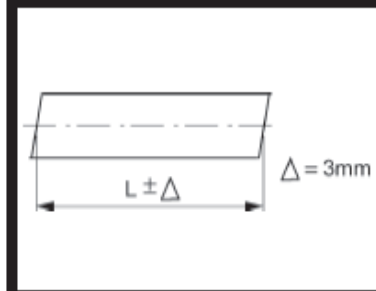
7.5.6 Web stiffeners

Straightness out of plane to plate after welding.



7.5.7 Length

Length on centre line.



7.5.8 Curved or cambered

Deviation from intended curve or camber at mid-length of curved portion when measured with the uncambered side horizontal.

