CLAIMS

[Document Type]

What is claimed is:

1. A method of designing a rolled H-section steel,

the rolled H-section steel including

an upper flange,

a lower flange, and

a web connecting the upper flange to the lower flange,

an outer circumferential surface of each of the upper flange, the lower flange, and the web being subjected to a surface treatment,

the method comprising:

setting a height dimension H from the upper flange to the lower flange, a width dimension W of each of the upper flange and the lower flange, a plate thickness tw of the web, and a plate thickness tf of each of the upper flange and the lower flange so that, when it is assumed that a value obtained by dividing a second moment of area Ix about a strong axis by an outer circumferential length Lp in a cross-sectional shape when viewed in a cross section perpendicular to a member axis direction is a surface treatment economy Ix/Lp and an area of the cross-sectional shape is S, Formulas (35) to (38) are satisfied, the height dimension H is 700 mm or more and 1500 mm or less, the width dimension W is 1/5 or more and 1/2 or less of the height dimension H, the plate thickness tw is 9 mm or more and 32 mm or less, and the plate thickness tf is 12 mm or more and 40 mm or less.

[Math 28]

dividing a full plastic moment Mp of the rolled H-section steel by the elastic lateral buckling moment M_{cr} becomes 0.6 or less.

4. A rolled H-section steel comprising:

an upper flange;

a lower flange; and

a web which connects the upper flange to the lower flange,

wherein an outer circumferential surface of each of the upper flange, the lower flange, and the web is subjected to a surface treatment,

a height dimension H from the upper flange to the lower flange is 700 mm or more and 1500 mm or less,

a width dimension W of each of the upper flange and the lower flange is 1/5 or more and 1/2 or less of the height dimension H,

a plate thickness tw of the web is 9 mm or more and 32 mm or less,

a plate thickness tf of each of the upper flange and the lower flange is 12 mm or more and 40 mm or less, and

when it is assumed that a value obtained by dividing a second moment of area Ix about a strong axis by an outer circumferential length Lp in a cross-sectional shape when viewed in a cross section perpendicular to a member axis direction is a surface treatment economy Ix/Lp and an area of the cross-sectional shape is S, the height dimension H, the width dimension W, the plate thickness tw, and the plate thickness tf satisfy Formulas (35) to (38).

[Math 31]

$$Ix / Lp = C_{k1} \cdot \exp\left(C_{k2} \cdot H / S\right) \quad \cdot \cdot \cdot \quad (35)$$

$$C_{k1} = 120 + 100 \cdot k \quad \cdot \cdot \cdot \quad (36)$$

$$C_{k2} = -106 + 10 \cdot k \quad \cdot \cdot \cdot \quad (37)$$

$$6.1 \leq k \leq 8 \quad \cdot \cdot \cdot \quad (38)$$