

**Product Category:** 05.40.00 - Cold-Formed Metal Framing

**Product Name:** 1400S400-97

**Available Finish:** G60, G90

\*Other standard coatings referenced in ASTM A1003

**Web Depth:** 14 in

**Flange Width:** 4 in

**Design Thickness:** 0.1017 in

**Gauge:** 97 mills or 12G

**Yield stress, Fy:** 50 ksi

**Weight:** 8.04 lb/ft

### Gross Section Properties

Cross sectional area (A)	2.364 in <sup>2</sup>
Moment of inertia (Ix)	67.418 in <sup>4</sup>
Section Modulus (Sx)	9.631 in <sup>3</sup>
Radius of gyration (Rx)	5.340 in
Gross moment of inertia (Iy)	4.574 in <sup>4</sup>
Gross Radius of gyration (Ry)	1.391 in

### Effective Section Properties

Moment of inertia for deflection (I <sub>x</sub> )	66.887 in <sup>4</sup>
Section modulus (S <sub>x</sub> )	8.215 in <sup>3</sup>
Allowable bending moment (M <sub>a</sub> )	245.950 In-k
Allowable bending moment from distortional buckling (M <sub>ad</sub> )	206.90 In-k
Allowable strong axis shear away from punch-out (V <sub>ag</sub> )	6939 lb
Allowable strong axis shear at punch out (V <sub>anet</sub> )	6939 lb

- Calculated properties are based on AISI S100-16/S240-20, North American Specification for Design of Cold-Formed Steel Structural Members and meets the requirements of the IBC 2021 Building Code.
- The centerline bend radius is based on inside corner radii shown in thickness chart.
- Effective properties incorporate the strength increase from the cold work of forming as applicable per AISI A7.2.
- Tabulated gross properties are based on full-unreduced cross section of the studs, away from punchouts.
- For deflection calculations, use the effective moment of inertia.
- Allowable moment includes cold-work of forming.
- For the steels that have both 33 and 50 ksi listing, if the design is based on 50 ksi, the 50 ksi steel needs to be specified. (ex. 3.625S137 16-50 (50 ksi))



### Torsional Properties

St. Venant torsion constant (J x 1000)	8.150 in <sup>4</sup>
Warping constant (C <sub>w</sub> )	178.493 in <sup>6</sup>
Distance from shear center to neutral axis (X <sub>o</sub> )	-2.544 in
Distance from shear center to mid-plane of web (m)	1.602 in
Radii of gyration (R <sub>o</sub> )	6.077 in
Torsional flexural constant (β)	0.825
Unbraced Length (L <sub>u</sub> )	79.1 in

### **Additional Information**

MRI Steel Framing, LLC is an SFIA member. MRI acts in accordance with the product and quality standards required by the SFIA program.

MRI meets or exceeds ASTM C955, A653, and A1003.

Current LEED credits available upon request