



Product Category: 09.22.16 - Non-Structural Metal Framing

Product Name: 400S125-33

Available Finish: G60

(G40/G90 coatings available upon request)

*Other standard coatings referenced in ASTM A1003

Web Depth: 4 in

Flange Width: 1-1/4 in

Design Thickness: 0.0346 in

Gauge: 33 mils or 20G ST

Yield stress, Fy: 33 ksi

Weight: 0.77 lb/ft

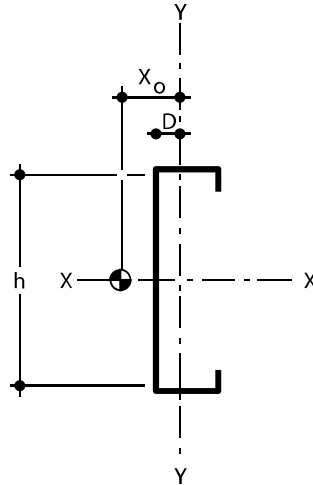
Gross Section Properties

| | |
|-------------------------------|-----------------------|
| Cross sectional area (A) | 0.228 in ² |
| Moment of inertia (Ix) | 0.531 in ⁴ |
| Section Modulus (Sx) | 0.265 in ³ |
| Radius of gyration (Rx) | 1.527 in |
| Gross moment of inertia (Iy) | 0.038 in ⁴ |
| Gross Radius of gyration (Ry) | 0.407 in |

Effective Section Properties

| | |
|---|-----------------------|
| Moment of inertia for deflection (Ix) | 0.523 in ⁴ |
| Section modulus (Sx) | 0.203 in ³ |
| Allowable bending moment (Ma) | 4.020 In-k |
| Allowable bending moment from distortional buckling (Mad) | 3.78 In-k |
| Allowable strong axis shear away from punch-out (Vag) | 976 lb |
| Allowable strong axis shear at punch out (Vanet) | 595 lb |

- Calculated properties are based on AISI S100-16/S2-20, 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.



Torsional Properties

| | |
|--|-----------------------|
| St. Venant torsion constant (J x 1000) | 0.091 in ⁴ |
| Warping constant (Cw) | 0.118 in ⁶ |
| Distance from shear center to neutral axis (Xo) | -0.738 in |
| Distance from shear center to mid-plane of web (m) | 0.465 in |
| Radius of gyration (Ro) | 1.745 in |
| Torsional flexural constant (β) | 0.821 |
| Unbraced Length (Lu) | 28.4 in |

Fully Braced Non-Composite Limiting Heights Table Notes

- 5 psf, 7.5 psf, and 10 psf loads have NOT been reduced for strength or deflection checks.
- Calculated properties are based on AISI S100-16/S2-20, North American Specification for Cold-Formed Steel Structural Members and meets the requirements of the IBC 2021 Building Code.
- Limiting heights are based on continuous support of each flange over the full length of the stud.
- Limiting heights are based on steel properties only (non-composite).
- Web crippling checks are based on end-one flange loading condition using 1-inch end bearing.

Non-Composite Limiting Heights – Fully Braced

| Spacing (inches) | 5psf L/120 | 5psf L/240 | 5psf L/360 | 7.5psf L/120 | 7.5psf L/240 | 7.5psf L/360 | 10psf L/120 | 10psf L/240 | 10psf L/360 |
|------------------|------------|------------|------------|--------------|--------------|--------------|-------------|-------------|-------------|
| 12 | 22'-5" | 18'-11" | 16'-7" | 18'-3" | 16'-7" | 14'-5" | 15'-10" | 15'-0" | 13'-2" |
| 16 | 19'-5" | 17'-3" | 15'-0" | 15'-10" | 15'-0" | 13'-2" | 13'-8" | 13'-8" | 11'-11" |
| 24 | 15'-10" | 15'-0" | 13'-2" | 12'-11" | 12'-11" | 11'-6" | 11'-2" | 11'-2" | 10'-5" |

Interior Composite Limiting Heights

| Spacing (inches) | 5psf L/120 | 5psf L/240 | 5psf L/360 | 7.5psf L/120 | 7.5psf L/240 | 7.5psf L/360 | 10psf L/120 | 10psf L/240 | 10psf L/360 | 15psf L/120 | 15psf L/240 | 15psf L/360 |
|------------------|------------|------------|------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 12 | 25' 3" | 20' 1" | 17' 6" | 22' 1" | 17' 6" | 15' 4" | 20' 1" | 15' 11" | 13' 11" | 13' 11" | 13' 11" | 12' 0" |
| 16 | 22' 11" | 18' 3" | 15' 11" | 20' 1" | 15' 11" | 13' 11" | 18' 3" | 14' 5" | 12' 7" | 12' 1" | 12' 1" | 10' 9" |
| 24 | 19' 11" | 15' 10" | 13' 10" | 17' 5" | 13' 10" | 12' 1" | 18' 5" | 18' 5" | 18' 5" | 15' 10" | 12' 7" | |

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 C645, C745, A653, and A1003.

Current LEED credits available upon request