

400S250-33-P (33ksi, CP60, Punched)
4" structural stud with S250 (2-1/2") flange - 33mils (20ga)
Coating: CP60 per AISI S240

Color Code: White

Geometric Properties
Web depth: 4.000 in

Thickness: 33mils (20ga)

Yield strength, Fy: 33 ksi

Flange width: 2.500 in

Design Thickness: 0.0346 in

***Fy with Cold-Work, Fya:** 33.0 ksi

Stiffening lip: 0.625 in

Min. steel thickness: 0.0329 in

Ultimate, Fu: 45.0 ksi

Gross Section Properties of Full Section, Strong Axis

Cross sectional area (A)	0.344 in ²
Member weight per foot of length	1.17 lb/ft
Moment of inertia (Ix)	0.948 in ⁴
Section Modulus (Sx)	0.474 in ³
Radius of gyration (Rx)	1.660 in
Gross moment of inertia (Iy)	0.310 in ⁴
Gross radius of gyration (Ry)	0.949 in

Effective Section Properties, Strong Axis

Effective Area (Ae)	0.201 in ²
Moment of inertia for deflection (Ix)	0.905 in ⁴
Section modulus (Sx)	0.352 in ³
Allowable bending moment (Ma)	6.95 in-k
Allowable moment based on distortion buckling (Mad)	7.10 in-k
Allowable shear force in web (solid section)	976 lb
Allowable shear force in web (perforated section)	595 lb
Unbraced length (Lu)	63.7 in

Torsional Properties

St. Venant torsional constant (J x 1000)	0.137 in ⁴
Warping constant (Cw)	1.165 in ⁶
Distance from shear center to neutral axis (Xo)	-2.151 in
Distance between shear center and web centerline (m)	1.259 in
Radii of gyration (Ro)	2.878 in
Torsional flexural constant (Beta)	0.441

- Effective properties incorporate the strength increase from the cold work of forming.
- Gross properties are based on the cross section away from the punchouts.
- Effective properties are based on knockout/punched sections.
- **This section does not meet the requirements of AISI North American Specifications. Increase the thickness or contact ClarkDietrich Tech Support for design solutions.**

Code Approvals & Performance Standards

- **AISI S100-16 (2020) w/S2-20** North American Specification for the Design of Cold-Formed Steel Structural Members
- **AISI S240-20** North American Standard for Cold-Formed Steel Structural Framing
 - (Compliant to ASTM C955, but IBC replaced with AISI S200 in IBC 2015, AISI S240 in IBC 2018)
 - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
 - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
 - Section A5 Products - Thickness, shapes, tolerances, identification
 - Section C Installation - (Referencing ASTM C1007)
- **AISI S202-20** Code of Standard Practice for Cold-Formed Steel Structural Framing
 - Section F3 Delivery, Handling and Storage of Materials
- **SDS For ASTM A1003 Steel Framing Products** For Interior Framing, Exterior Framing and Clips/Accessories


Structural Punchout
East Coast / Central punch spacing:

Center of punchouts are 12" from lead end, then 24" o.c.

West Coast punch spacing:

Center of punchouts are 24" from lead end, then 24" o.c.

Center of tail end punchout not less than 12" from end of stud.

If lateral bracing is required for head-of-wall deflection track and a punchout is not spaced 12" from the top of stud, use strapping and blocking in lieu of CRC or Spazzer Bar lateral bridging.

If custom punchout patterns are required, contact ClarkDietrich Sales or local plant for requests.

Sustainability Credits For more details and LEED letters contact Technical Services at 888-437-3244 or visit clarkdietrich.com/LEED.

- **LEED v4.1 MR Credit:** Environmental Product Declarations: EPD (1 point) - Sourcing of Raw Materials (up to 2 points) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points)
- **LEED v4 MR Credit:** Building Product Disclosure and Optimization: EPD (1 point) - Sourcing of Raw Materials (1 point) - Material Ingredients (1 point) - Construction and Demolition Waste Management (up to 2 points) - Innovation Credit (up to 2 points).