

Technical Services: 888-437-3244, Engineering Services: 877-832-3206, Sales 800-543-7140

05.40.00 (Cold-Formed Metal Framing)

400S250-43-P (33ksi, CP60, Punched)

4" structural stud with S250 (2-1/2") flange - 43mils (18ga)

Coating: CP60 per AISI S240

Geometric Properties

Web depth: 4.000 in	Thickness: 43mils (18ga)
Flange width: 2.500 in	Design Thickness: 0.0451 in
Stiffening lip: 0.625 in	Min. steel thickness: 0.0428 in

Yield strength, Fy: 33 ksi *Fy with Cold-Work, Fya: 33.0 ksi Ultimate, Fu: 45.0 ksi

Color Code: Yellow

Gross Section Properties of Full Section, Strong Axis		
Cross sectional area (A)	0.447 in ²	
Member weight per foot of length	1.52 lb/ft	
Moment of inertia (lx)	1.224 in ⁴	
Section Modulus (Sx)	0.612 in ³	
Radius of gyration (Rx)	1.655 in	
Gross moment of inertia (ly)	0.399 in ⁴	
Gross radius of gyration (Ry)	0.945 in	
Effective Section Properties, Strong Axis		
Effective Area (Ae)	0.292 in ²	
Moment of inertia for deflection (lx)	1.224 in ⁴	
Section modulus (Sx)	0.503 in ³	
Allowable bending moment (Ma)	9.93 in-k	
Allowable moment based on distortion buckling (Mad)	10.09 in-k	
Allowable shear force in web (solid section)	1739 lb	
Allowable shear force in web (perforated section)	810 lb	
Unbraced length (Lu)	63.7 in	
Torsional Properties		
St. Venant torsional constant (J x 1000)	0.303 in ⁴	
Warping constant (Cw)	1.486 in ⁶	
Distance from shear center to neutral axis (Xo)	-2.139 in	
Distance between shear center and web centerline (m)	1.252 in	
Radii of gyration (Ro)	2.865 in	
Torsional flexural constant (Beta)	0.443	

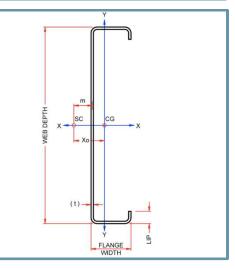
• Effective properties incorporate the strength increase from the cold work of forming.

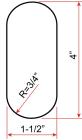
Gross properties are based on the cross section away from the punchouts.

Effective properties are based on knockout/punched sections.

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 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
- IBC 2021 International Building Code
- ICC-ES ESR-1166P Structural Studs and Track
- ESR-1166P LABC and LARC Supplement
- ESR-1166P Catalog ClarkDietrich Structural Technical Design Guide (6/22/20)
- Intertek CCRR-0206 Structural Studs and Track
- SFIA Stud Code Compliance Certification Program
- SDS For ASTM A1003 Steel Framing Products For Interior Framing, Exterior Framing and Clips/Accessories





Structural Punchout

East Coast / Central punch spacing: Center of punchoutss 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).