

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

#### 05.40.00 (Cold-Formed Metal Framing)

# 1400S200-54-P (50ksi, CP60, Punched)

#### 14" structural stud with S200 (2") flange - 54mils (16ga)

Coating: CP60 per AISI S240

### **Geometric Properties**

Crease Section Properties of Full Sec		
Stiffening lip	<b>:</b> 0.625 in	Min. steel thickness: 0.0538 in
Flange width	<b>1:</b> 2.000 in	Design Thickness: 0.0566 in
Web depth:	14.000 in	Thickness: 54mils (16ga)

Yield strength, Fy: 50 ksi \*Fy with Cold-Work, Fya: 50.0 ksi Ultimate, Fu: 65.0 ksi

Color Code: Green

Gross Section Properties of Full Section, Strong Axis			
Cross sectional area (A)	1.066 in <sup>2</sup>		
Member weight per foot of length	3.63 lb/ft		
Moment of inertia (Ix)	25.961 in <sup>4</sup>		
Section Modulus (Sx)	3.709 in <sup>3</sup>		
Radius of gyration (Rx)	4.936 in		
Gross moment of inertia (ly)	0.406 in <sup>4</sup>		
Gross radius of gyration (Ry)	0.617 in		
Effective Section Properties, Strong Axis			
Effective Area (Ae)	0.338 in <sup>2</sup>		
Moment of inertia for deflection (lx)	23.201 in <sup>4</sup>		
Section modulus (Sx)	2.440 in <sup>3</sup>		
Allowable bending moment (Ma)	73.06 in-k		
Allowable moment based on distortion buckling (Mad)	60.19 in-k		
Allowable shear force in web (solid section)	1177 lb		
Allowable shear force in web (perforated section)	1177 lb		
Unbraced length (Lu)	38.2 in		
Torsional Properties			
St. Venant torsional constant (J x 1000)	1.138 in <sup>4</sup>		
Warping constant (Cw)	16.355 in <sup>6</sup>		
Distance from shear center to neutral axis (Xo)	-0.946 in		
Distance between shear center and web centerline (m)	0.633 in		
Radii of gyration (Ro)	5.063 in		
Torsional flexural constant (Beta)	0.965		

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

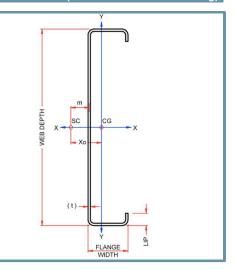
Gross properties are based on the cross section away from the punchouts.

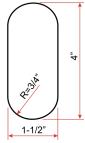
• Effective properties are based on knockout/punched sections.

 Web-height to thickness ratio exceeds 200. Web Stiffeners are required at all support points and concentrated loads.

## **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).