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400VS125-15 (25EQ) VIPERSTUD

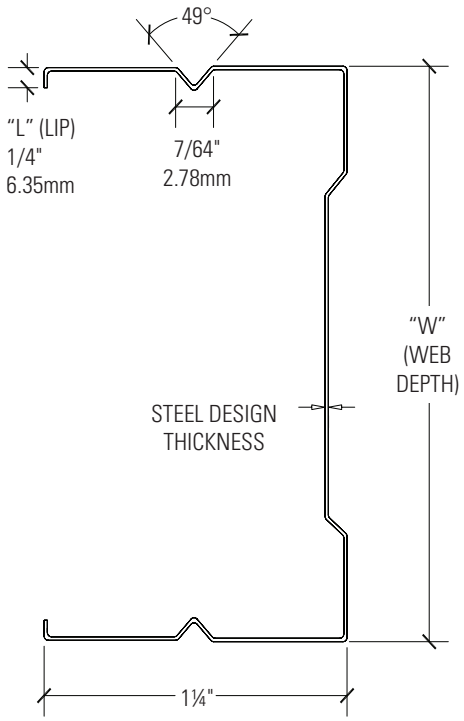
Geometric Properties

4" x 1-1/4" flange, 15 mil ViperStuds are manufactured from standard G40 hot-dipped galvanized steel. G60 and G90 coatings are available through special order, and may require up-charges and extended lead times.

Steel Thickness

Model No.	Design Thickness (in)	Minimum Thickness (in)	Yield (ksi)	"W" Web Sizes (in)	Coating[4,5]	Flange (in)	"L" Return Lip (in)
400VS125-15 (25EQ)	0.0155	0.0147	50	4	G40	1-1/4	1/4

Notes: **1.** Uncoated steel thickness. Thickness is for carbon sheet steel. **2.** Minimum thickness represents 95% of the design thickness and is the minimum acceptable thickness. **3.** Knockout size for 4" Stud is 1-1/2" x 2-1/2". **4.** Per ASTM C645 & A1003, Table 1. **5.** G60 and G90 available upon request. Will require extended lead time and upcharge.



Color Code (painted on ends): 15 mil: None with Dark Grey band on pallet

ASTM & Code Standards:

- ASTM A653/A653M, A924/A924M, A1003/1003, C645 & C754
- ICC-ES & SFIA Code Compliance Certification Program
- ICC ESR-2620
- CBC: 2016, 2019, 2022
- IBC: 2015, 2018, 2021
- AISI: S100, S220

LEED v4 for Building and Design Construction

- MR Prerequisite: Construction and Demolition Waste Management Planning.
- MR Credit: Construction and Demolition Waste Management.
- MR Credit: Building Product Disclosure and Optimization – Sourcing of Raw Materials, Option 2.
- MR Credit: Building Product Disclosure and Optimization – Environmental Product Declarations, Options 1 & 2.
- MR Credit: Building Product Disclosure and Optimization – Material Ingredients, Option 1.
- MR Credit: Building Life-Cycle Impact Reduction, Option 4.

400VS125-15[4] (25EQ)ViperStud Properties

Design (in)	Min (in)	Yield (ksi)	Weight (lb/ft)	Gross Properties					Effective Properties		Moment				Critical Unbraced Length[7] Lu (in)
				Area (in^2)	Ix (in^4)	rx (in)	Iy (in^4)	ry (in)	Ixd (in^4)	Sx (in^3)	Allowable Moment Ma (in-k)	Local Buckling Nominal Moment[2] Viper Mnl (in-k)	Distortional Buckling Nominal Moment[2] Viper Mnd (in-k)	Nominal Moment for Conventional Studs[3] Mn (in-k)	
0.0155	0.0147	50	0.37	0.108	0.250	1.520	0.020	0.429	0.255	0.061	1.69	3.06	3.06	2.74 (18 mil)	24.4

Notes: **1.** Nominal Moments for Viper25 are based on testing. Allowable moment (Ma) is calculated with safety factor of 1.81 in accordance with chapter F of AISI S100-16/S2-20 specification. **2.** Nominal moment for Viper20, Viper 30mil, Viper 33mil and conventional studs are based on calculations per AISI S100-16/S2-20. **3.** Section properties are in accordance with AISI S100-16/S2-20. **4.** Web depth-to-thickness ratio exceeds 200. **5.** Web depth-to-thickness ratio exceeds 260. **6.** ViperStud is considered fully braced when the unbraced length is less than listed Lu. **7.** KΦ assumed to be zero for distortional buckling moments.

Non-Composite Limiting Heights – Braced at 48" O.C.

Depth (in)	Gauge	Member Designation	Design (in)	Min (in)	Yield (ksi)	Spacing (o.c.)	5 PSF			7.5 PSF			10 PSF		
							L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
4	25EQ	400VS125-15[6] (25EQ)	0.0155	0.0147	50	12	13'-10" f	13'-10"f	13'-1"	11'-4"f	11'-4" f	11'-4" f	9'-10" f	9'-10" f	9'-10" f
		400VS125-15[6] (25EQ)	0.0155	0.0147	50	16	12'-0" f	12'-0"f	11'-11"	9'-10"f	9'-10" f	9'-10" f	7'-5" w	7'-5" w	7'-5" w
		400VS125-15[6] (25EQ)	0.0155	0.0147	50	24	9'-10" f	9'-10"f	9'-10"f	6'-6"w	6'-6" w	6'-6" w	--	--	--

Notes: **1.** Limiting heights are in accordance with AISI S100-16/S2-20 using all steel non-composite design. **2.** Limiting heights are established by considering flexure, shear, web crippling and deflection. **3.** Lateral-Torsional buckling moments are based on section F of AISI S100-16/S2-20, with max discrete bracing of 48" o.c. **4.** For web crippling, when h/t≤ 200, the web crippling values are computed based on section G6 of AISI S100-16/S2-20, when h/t>200, the web crippling values are based on testing with a bearing length of 1". **5.** No web stiffeners are required for studs with h/t < 200, web crippling and shear values have been confirmed by testing. **6.** The factory punchouts are in accordance with AISI standards. The distance from the center of the last punchout to the end of the stud is 12". **7.** Use non-composite tables when 1/2 inch gypsum board, horizontal board, RC channel, furring channel, or sound clips are used. **8.** Review fire rated assemblies for additional requirements.

"f" - flexure controls; "s" - shear controls; "w" - web crippling controls. No letter next to the number means deflection controls.

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Non-Composite Limiting Heights – Fully Braced

Depth (in)	Gauge	Member Designation	Design (in)	Min (in)	Yield (ksi)	Spacing (o.c.)	5 PSF			7.5 PSF			10 PSF		
							L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
4	25EQ	400VS125-15[6] (25EQ)	0.0155	0.0147	50	12	15'-0" f	15'-0"	13'-1"	12'-4" f	12'-4" f	11'-5"	10'-7" f	10'-7" f	10'-5"
		400VS125-15[6] (25EQ)	0.0155	0.0147	50	16	13'-0" f	13'-0" f	11'-11"	10'-7" f	10'-7" f	10'-5"	9'-2" f	9'-2" f	9'-2"f
		400VS125-15[6] (25EQ)	0.0155	0.0147	50	24	10'-7" f	10'-7" f	10'-5"	8'-6" w	8'-6" w	8'-6" w	6'-5" w	6'-5" w	6'-5"w

Notes: 1. Limiting heights are in accordance with AISI S100-16/S2-20 using all steel non-composite design. **2.** Limiting heights are established by considering flexure, shear, web crippling, and deflection. **3.** For bending, studs are assumed to be adequately braced to develop full allowable moment. Studs are considered fully braced when unbraced length is less the Lu. See section properties table on page 5 for Lu values. **4.** For web crippling, when h/t ≤ 200, the web crippling values are computed based on section G6 of AISI S100-16/S2-20, when h/t > 200, the web crippling values are based on testing with a bearing length of 1". **5.** No web stiffeners are required for studs with h/t < 200, web crippling and shear values have been confirmed by testing. **6.** The factory punchouts are in accordance with AISI standards. The distance from the center of the last punchout to the end of the stud is 12". **7.** Use non-composite tables when 1/2 inch gypsum board, horizontal board, RC channel, furring channel, or sound clips are used. **8.** Review fire rated assemblies for additional requirements.

"f" - flexure controls; "s" - shear controls; "w" - web crippling controls. No letter next to the number means deflection controls.

Allowable Composite Heights for Non-Load Bearing Walls

Depth (in)	Gauge	Member Designation	Design (in)	Min (in)	Yield (ksi)	Spacing (o.c.)	5 PSF			7.5 PSF			10 PSF		
							L/120	L/240	L/360	L/120	L/240	L/360	L/120	L/240	L/360
4	25EQ	400VS125-15 (25EQ)	0.0155	0.0147	50	12	22'-1"	18'-3"	16'-3"	19'-3"	15'-11"	14'-2"	16'-8"	14'-6"	12'-11"
		400VS125-15 (25EQ)	0.0155	0.0147	50	16	20'-0"	16'-7"	14'-9"	16'-8"	14'-6"	12'-11"	14'-5"	13'-2"	11'-9"
		400VS125-15 (25EQ)	0.0155	0.0147	50	24	16'-8"	14'-6"	12'-11"	13'-7"	12'-8"	11'-3"	11'-9"	11'-6"	10'-1"

Notes: 1. Sheathing, as specified in Section 3.2.2, must be attached to both faces of the wall for the full height of the wall with the long dimension parallel to the studs. **2.** Sheathing must be fastened to the studs with fasteners as specified in Section 3.2.3 and installed per Section 4.2.1. **3.** Placement of joints in the gypsum sheathing must be in accordance with Sections 4.6.3 and 4.6.4 of GA-216 or Section 7.5 of ASTM C840. **4.** The bottom and top tracks are xxxVT125 (solid flange track). A minimum 30 mil slotted flange track (xxxCST250 or xxxSLT250) may be used for the top track. **5.** End-bearing must be a minimum of 1 inch for xxxVT125 (solid flange track) and 1-5/8 inches for xxxCST250 or xxxSLT250 (slotted flange track). **6.** Notes 1, 2, & 3 are referenced in ICC ESR 2620 page 5. **7.** For any other top tracks not listed in note 4, please contact technical services for assistance.

Allowable Ceiling Spans

L/240		4 PSF Lateral Support of Compression Flange						6 PSF Lateral Support of Compression Flange					
Member	Fy ksi	Unsupported Joist Spacing (in.) O.C.			Midspan Joist Spacing (in.) O.C.			Unsupported Joist Spacing (in.) O.C.			Midspan Joist Spacing (in.) O.C.		
		12	16	24	12	16	24	12	16	24	12	16	24
400VS125-15 (25EQ)	50	9'-5"f	8'-9"f	7'-10"f	12'-5"f	11'-4"f	10'-0"f	8'-6"f	7'-10"f	7'-1"f	11'-0"f	10'-0"f	8'-9"f

L/360		4 PSF Lateral Support of Compression Flange						6 PSF Lateral Support of Compression Flange					
Member	Fy ksi	Unsupported Joist Spacing (in.) O.C.			Midspan Joist Spacing (in.) O.C.			Unsupported Joist Spacing (in.) O.C.			Midspan Joist Spacing (in.) O.C.		
		12	16	24	12	16	24	12	16	24	12	16	24
400VS125-15 (25EQ)	50	9'-5"f	8'-9"f	7'-10"f	12'-5"f	11'-4"f	10'-0"f	8'-6"f	7'-10"f	7'-1"f	11'-0"f	10'-0"f	8'-9"f

Notes: 1. Ceiling Spans are in accordance with AISI S100-16/S2-20 using all steel non-composite design. **2.** Ceiling Spans are established by considering flexure, shear, web crippling and deflection. **3.** For web crippling, when h/t ≤ 200, the web crippling values are computed based on G6 of AISI S100-16/S2-20. When h/t > 200, the web crippling values are based on testing with a bearing length of 1". **4.** No web stiffeners are required for studs with h/t < 200, web crippling and shear values have been confirmed by testing. **5.** All values are for simple spans, with compression flange either unbraced or braced at midspan. **6.** Ceiling spans are based on total load of assembly, not including storage or live load for accessible ceilings. **7.** The factory punchouts are in accordance with AISI standards. The distance from the center of last punchout to the end of the stud is 12".

"f" - flexure controls; "s" - shear controls; "w" - web crippling controls. No letter next to the number means deflection controls.

CEMCO cold-formed steel framing products contain 30% to 37% recycled steel.
■ Total Recycled Content: 36.9% ■ Post-Consumer: 19.8% ■ Pre-Consumer: 14.4%

CSI Division:
■ 09.22.16 – Non-Structural Metal Framing