MasterClip® VLB

Bypass Slab

The Steel Network, Inc.
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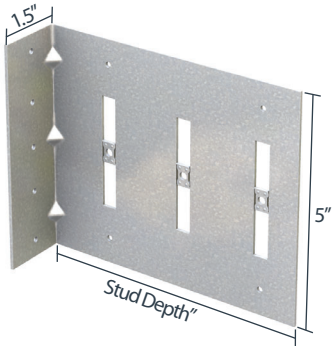
Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of MasterClip® to the primary structure may be made with a PAF, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.

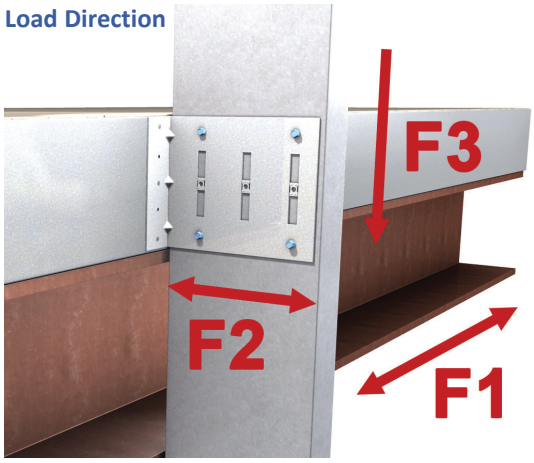


US Patents #8,181,419, #8,683,770 & #10,132,341

MasterClip VLB Allowable Loads

MasterClip® VLB, Recommended Allowable Load (lbs), For VERTICAL DEFLECTION: F1 & F2					
Stud		F1 Load Direction		F2 Load Direction	
Thickness Mils (ga)	Yield Strength (ksi)	VLB600	VLB800	VLB600 & VLB800	
		w/2-3 #12 Screws		w/2 #12 Screws	w/3 #12 Screws
		Patterns 1 & 2		Pattern 1	Pattern 2
33 (20)	33	95	95	377	565
33 (20)	50	138	107	544	817
43 (18)	33	124	107	561	841
43 (18)	50	179	107	810	1,215
54 (16)	33	156	107	789	1,183
54 (16)	50	225	107	1,139	1,567
68 (14)	50	227	107	1,567	1,567
97 (12)	50	227	107	1,567	1,567
Maximum Allowable Clip Load		227	107	1,567	

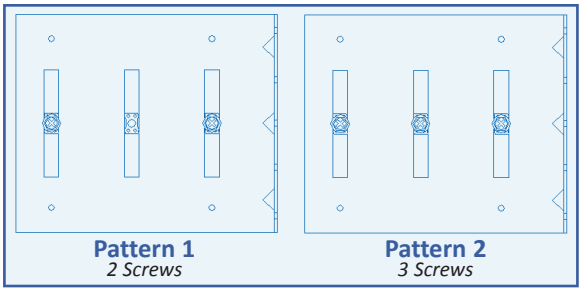
Load Direction



MasterClip® VLB, Recommended Allowable Load (lbs), For RIGID CONNECTION: F1, F2 & F3											
Stud		F1 Load Direction		F2 Load Direction			F3 Load Direction				
Thickness Mils (ga)	Yield Strength (ksi)	VLB600	VLB800	VLB600	VLB600 & VLB800		VLB600	VLB600	VLB800	VLB600	VLB800
		w/3-4 #12 Screws		w/2 #12 Screws	w/3 #12 Screws	w/4 #12 Screws	w/2 #12 Screws	w/3 #12 Screws		w/4 #12 Screws	
		Patterns 4 & 5		Pattern 3	Pattern 4	Pattern 5	Pattern 3	Pattern 4		Pattern 5	
33 (20)	33	191	182	377	565	754	251	377	332	503	441
33 (20)	50	275	182	544	817	1,089	362	544	479	727	637
43 (18)	33	248	182	561	841	1,122	373	561	494	749	656
43 (18)	50	359	182	810	1,215	1,620	539	810	713	1,082	948
54 (16)	33	312	182	789	1,183	1,577	524	789	694	1,053	923
54 (16)	50	450	182	1,139	1,709	1,811	757	1,139	1,002	1,521	1,269
68 (14)	50	536	182	1,610	1,811	1,811	1,071	1,610	1,269	1,792	1,269
97 (12)	50	536	182	1,698	1,811	1,811	1,129	1,698	1,269	1,792	1,269
Maximum Allowable Clip Load		536	182	1,811			1,792	1,792	1,269	1,792	1,269

Important notes for MasterClip VLB Allowable Load tables continued on next page.

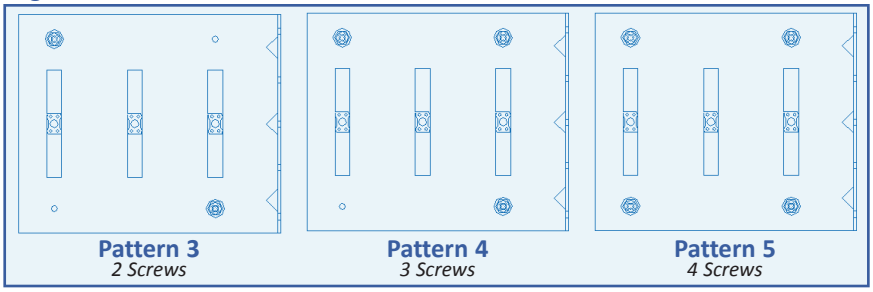
Vertical Deflection Screw Patterns



Pattern 1
2 Screws

Pattern 2
3 Screws

Rigid Connection Screw Patterns



Pattern 3
2 Screws

Pattern 4
3 Screws

Pattern 5
4 Screws

Notes:
- Allowable load tables incorporate eccentric loading of fasteners. Values with welded connection may increase.
- Fasten within ¾" from the angle heel (centerline of the 1½" leg) to minimize eccentric load transfer.
- Fasteners attaching clip to structure should be installed symmetrically around the center line of the clip. The allowable load of the clip may be reduced if fasteners are not installed symmetrically.
- Guide holes in the 1 ½" leg measure 0.141" in diameter.
- Total vertical deflection of up to 2" (1" up and 1" down).
- Allowable loads have not been increased for wind, seismic, or other factors.
- MasterClip VLB resists horizontal and vertical loads when used as a rigid connector.
- Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
- Torsional effects are considered on screw group for F3 allowable loads. It is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the connection to the stud.
- Design loads consider loads on the clip and #12 screw fasteners to the stud web.
- (3) #12 screws are provided with each connector to be used for eiter vertical deflection connector or rigid connector step bushing. Load requirements don't always justify use of all screws provided.
- Three slots are standard in 6" and higher web depths to accommodate construction tolerances. Use of a 3rd screw and bushing is dependent upon load configuration.

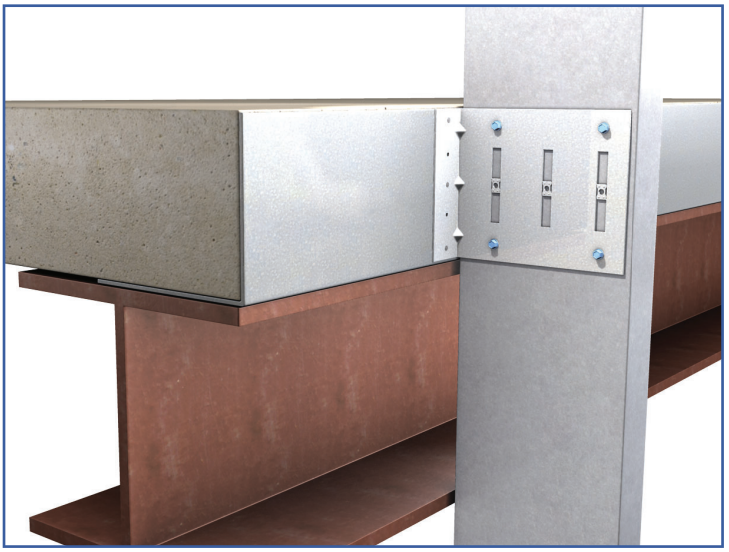
Nomenclature

MasterClip VLB is designated by type (VLB), followed by stud depth in inches multiplied by 100.

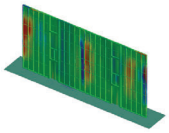
Example: *6" stud.*
Designate: *MasterClip® VLB600*

Example Details

MasterClip® VLB used for Vertical Deflection



MasterClip® VLB used as Rigid Connection



MasterClip VLB Series
Blast and Seismic Design Data
www.steelnetwork.com

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