

DSSCB Bypass Framing Drift Strut Connector



This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

The solution to accommodate building drift, the DSSCB, is used to support cold-formed steel bypass framing to the edge of a floor slab. The DSSCB also simplifies installation by allowing installers for panelized construction to install finished panels while working off the top of the slab without the need to predrill or preinstall anchors for each clip. It also eliminates the coordination difficulties associated with pre-anchorage of standard bypass clips. With prepunched slots and round holes, the DSSCB is a dual-function connector that can be used for slide-clip and fixed-clip applications.

Features:

- The clips come in lengths of 3½", 6" and 8".
- Prepunched slots provide a full 1" of both upward and downward deflection.
- Precision-manufactured shouldered screws, provided with DSSCB connectors, are designed to prevent overdriving and to ensure the clip functions properly.
- Works with 1¾" and 1⅝" strut channels as given in the accompanying figures. Common manufactured brands are Unistrut®, PHD and B-Line. Struts are not supplied by Simpson Strong-Tie.
- The maximum slide-clip standoff distance is 3¼" for 1¾" struts, 3⅞" for 1⅝" struts and 2¼" for concrete inserts.
- Depending on the application and the designer's specifications, struts can be either mechanically anchored, welded or cast in place.
- Pre-engineered design solutions are provided for channel strut anchorage.
- Tabulated design values are based on assembly testing to mitigate risk for designers, engineers and architects.
- Optional pre-cast concrete inserts for flush mounting.
- Optional drift stopper, DSHS, for clip alignment flexibility (where drift not required).

Material: DSSCB — 97 mil (12 ga.), 50 ksi;
DSHS — 97 mil (12 ga.), 33 ksi

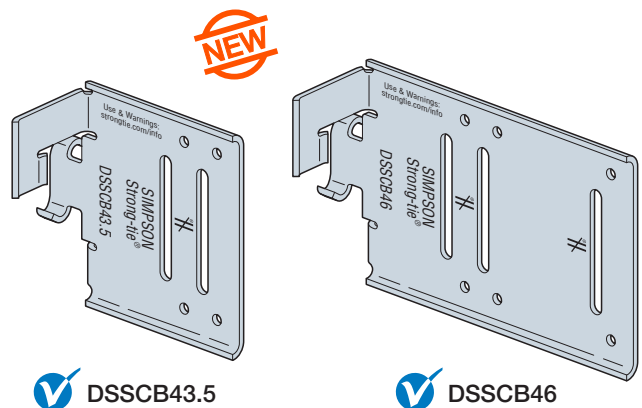
Finish: Galvanized (G90)

Codes: See p. 11 for Code Reference Key Chart.

Ordering Information:

The DSSCB43.5-KT25, DSSCB46-KT25 and DSSCB48-KT25 contain 25 connectors and enough shouldered screws for installation. The DSHS-R100 contains 100 connectors.

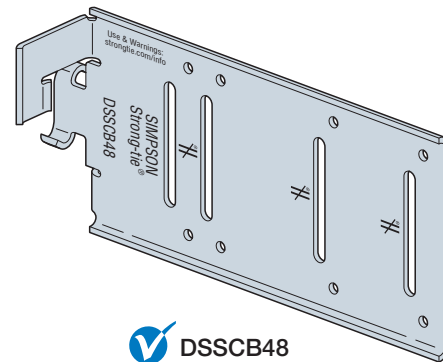
Note: Replacement #14 shouldered screws for DSSCB connectors are the XLSH78B1414-RP83.



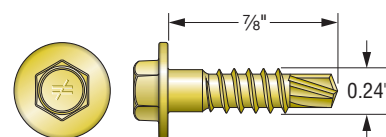
DSSCB43.5

DSSCB46

US Patent
Pending

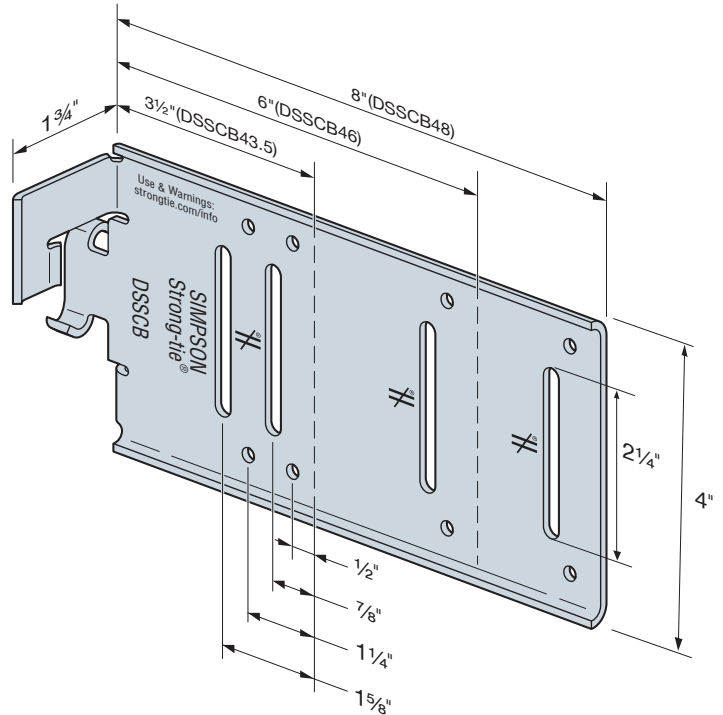
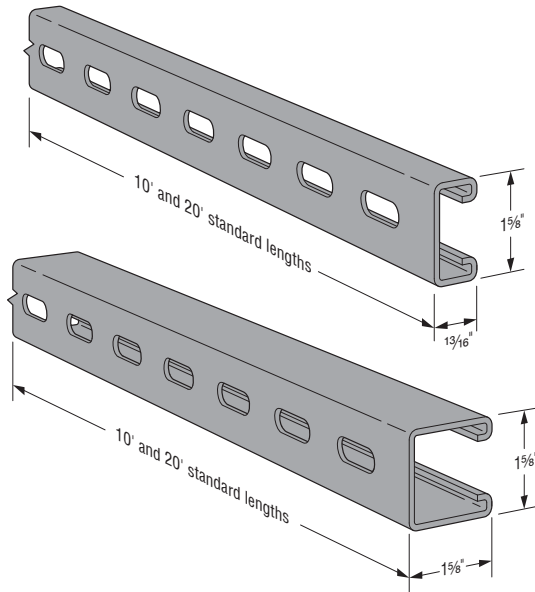
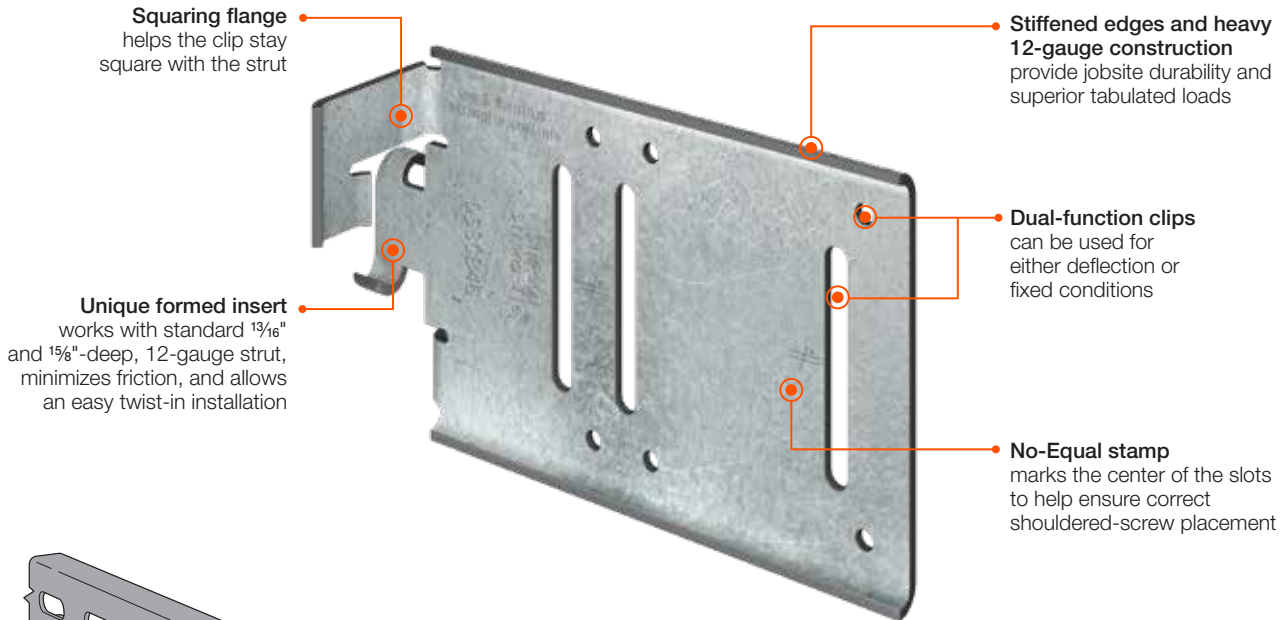


DSSCB48

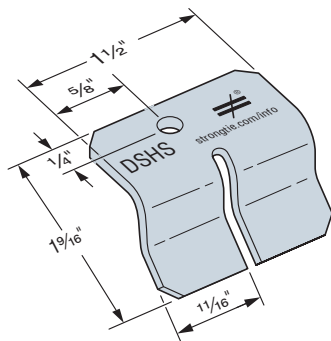


XLSH78B1414
#14 Shouldered Screw for
Attachment to Stud Framing
(included)

DSSCB Bypass Framing Drift Strut Connector



The Simpson Strong-Tie DSSCB works with 12-gauge standard strut channels (not sold by Simpson Strong-Tie). See p. 60 for strut requirements and p. 61 for concrete insert requirements. See p. 58 for model numbers and capacities.

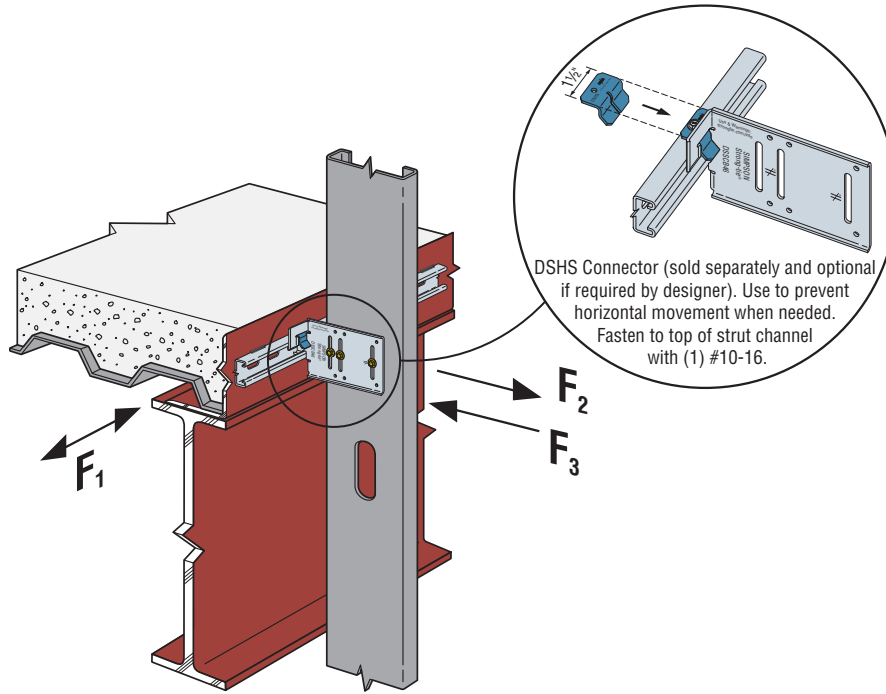


DSHS used to prevent horizontal sliding when needed (sold separately)

DSSCB Dimensions
U.S. Patent Pending

DSSCB Bypass Framing Drift Strut Connector

Drift Clips



Typical DSSCB Installation
Slide-Clip Application

DSSCB Screw Patterns (Slide-Clip Applications)

Model	Pattern A					
Model	Pattern B	Pattern C	Pattern D	Pattern E	Pattern F	Pattern G
DSSCB43.5						
DSSCB46						
DSSCB48						

DSSCB Bypass Framing Drift Strut Connector

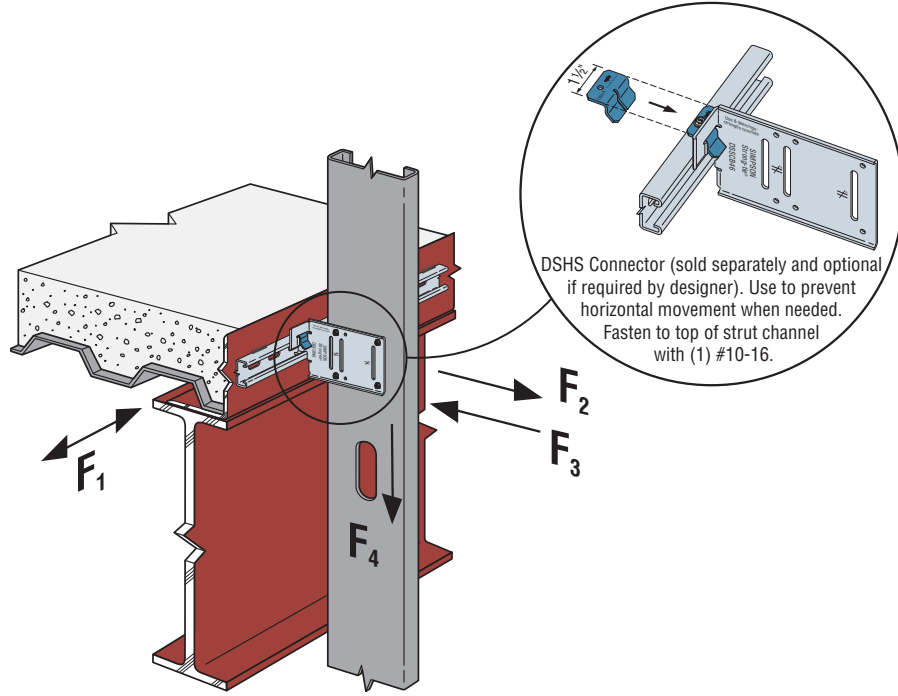
DSSCB Allowable Slide-Clip Connector Loads

Model No.	Stud Thickness mil (ga.)	Fasteners to Stud		Allowable Load (lb.)			Code Ref.
		Screw Pattern	No. of #14 Shouldered Screws	F ₁	F ₂	F ₃	
DSSCB43.5	33 (20)	A	2	105	515	615	IBC, LA
DSSCB46		B	3	105	765	920	
		C, D	2	105	515	615	
DSSCB48		E	4	105	765	1,225	
		F, G	3	105	765	920	
DSSCB43.5	43 (18)	A	2	155	785	940	
DSSCB46		B	3	155	1,175	1,410	
		C, D	2	155	785	940	
DSSCB48		E	4	155	1,175	1,880	
		F, G	3	155	1,175	1,410	
DSSCB43.5	54 (16)	A	2	225	1,160	1,345	
DSSCB46		B	3	225	1,475	2,020	
		C, D	2	225	1,160	1,280	
DSSCB48		E	4	225	1,475	2,445	
		F, G	3	225	1,475	1,965	
DSSCB43.5	68 (14) and 97 (12)	A	2	300	1,160	1,770	
DSSCB46		B	3	300	1,475	2,675	
		C, D	2	300	1,460	1,685	
DSSCB48		E	4	300	1,475	2,675	
		F, G	3	300	1,475	2,600	

1. For additional information, see General Information and Notes on p. 22.
2. DSSCB Allowable Slide-Clip Connector Loads are also limited by the Strut Channel Allowable Anchorage Load to Steel table on p. 58 or Concrete Insert Allowable Load Embedded to Concrete on p. 59. Use the minimum tabulated values from the connector and anchorage load tables as applicable.
3. See illustrations on p. 54 for shouldered screw fastener pattern placement to stud framing.
4. Tabulated F₁ loads are based on assembly tests with the load through the centerline of the stud. F₁ loads require DSHS connector with (1) #10 screw to strut.

DSSCB Bypass Framing Drift Strut Connector

Drift Clips



Typical DSSCB Installation
Fixed-Clip Application

DSSCB Screw Patterns (Fixed-Clip Applications)

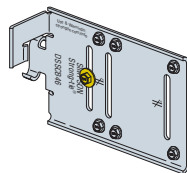
Model	Pattern H	Pattern I	Pattern J
DSSCB43.5			
Model	Pattern K	Pattern L	Pattern M
DSSCB46			
Model	Pattern N	Pattern O	Pattern P
DSSCB48			

DSSCB Bypass Framing Drift Strut Connector

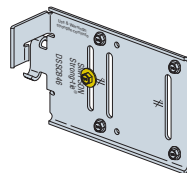
DSSCB Allowable Fixed-Clip Connector Loads

Model No.	Stud Thickness mil (ga.)	Screw Pattern	No. of #10 Screws	Allowable Load (lb.)				Code Ref.
				F ₁	F ₂	F ₃	F ₄	
DSSCB43.5	33 (20)	H	4	220	705	705	345	IBC, LA
		I, J	2	185	355	355	175	
DSSCB46		K	6	220	1,060	1,060	355	
		L, M	4	185	705	705	350	
DSSCB48		N	8	220	1,060	1,060	545	
		O, P	4	185	705	705	505	
DSSCB43.5	43 (18)	H	4	285	1,050	1,050	450	
		I, J	2	240	525	525	230	
DSSCB46		K	6	285	1,125	1,580	460	
		L, M	4	240	1,050	1,050	455	
DSSCB48		N	8	285	1,145	1,580	710	
		O, P	4	240	1,050	1,050	660	
DSSCB43.5	54 (16)	H	4	330	1,410	2,085	1,025	
		I, J	2	300	1,070	1,045	515	
DSSCB46		K	6	360	1,410	3,130	1,050	
		L, M	4	300	1,410	2,135	1,040	
DSSCB48		N	8	360	1,440	3,130	1,145	
		O, P	4	300	1,420	2,135	1,070	
DSSCB43.5	68 (14) and 97 (12)	H	4	395	1,410	2,160	1,025	
		I, J	2	300	1,080	1,080	515	
DSSCB46		K	6	395	1,410	3,130	1,050	
		L, M	4	300	1,410	2,160	1,040	
DSSCB48		N	8	395	1,440	3,240	1,145	
		O, P	4	300	1,420	2,160	1,070	

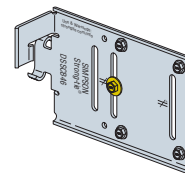
- For additional information, see General Information and Notes on p. 22.
- DSSCB Allowable Fixed-Clip Connector Loads are also limited by the Strut Channel Allowable Anchorage Load table on p. 58. Use the minimum tabulated values from the connector and anchorage load tables as applicable.
- See illustrations on p. 56 for screw fastener pattern placement to stud framing.
- Tabulated F₁ loads are based on assembly tests with the load through the centerline of the stud. F₁ loads require DSHS connector with (1) #10 screw to strut.
- In-plane capacities (F₁) for DSSCB attached to 54 mil (16 ga.) stud can be increased to 500 lb. with the addition of a shoulder screw at first slot from bend line for screw pattern K and L and at middle slot for pattern M (reference patterns shown to the right).



Screw pattern K
with added shoulder
screw per note 5



Screw pattern L
with added shoulder
screw per note 5



Screw pattern M
with added shoulder
screw per note 5

DSSCB Bypass Framing Drift Strut Connector

Strut Channel Allowable Anchorage Loads to Steel

Drift Clips

Strut Size (in.)	Models	Weld Anchorage Each Flange							#12-24 Screw Anchorage						Code Ref.
		Weld Spacing (in.)	Required Weld Length (in.)	F ₁ (lb.)	F ₂ (lb.)		F ₃ (lb.)	F ₄ (lb.)	Screw Spacing (in.)	F ₁ (lb.)	F ₂ (lb.)		F ₃ (lb.)	F ₄ (lb.)	
					Simple Span	Multi-Span					Simple Span	Multi-Span			
3/16	Unistrut® P4520; P4520HS; P4520T; P4520K0	4	1½	775	1,455	1,390	2,710	875	4	755	1,315	665	2,710	875	IBC, LA
		6	1½	775	970	1,030	2,710	875	6	755	970	665	2,710	655	
	PHD 1201; 1202; 1211; 1212; 1221; 1222; 1241; 1242	8	1	775	730	805	2,710	740	8	755	730	485	2,710	—	
		10	1	775	580	660	2,710	—	—	—	—	—	—	—	
	B-Line B52; B52H1 7/8; B52SH; B52K06	12	1	775	485	555	2,710	—	—	—	—	—	—	—	
		16	1	775	365	445	2,710	—	—	—	—	—	—	—	
1/8	Unistrut® P1000; P1000HS; P1000T; P1000K0	4	1½	775	3,595	3,500	3,925	—	4	755	1,315	1,315	3,925	—	
		6	1½	775	3,045	3,080	3,925	—	6	755	1,000	965	3,925	—	
	PHD 1001; 1002; 1011; 1012; 1021; 1022; 1041; 1042	8	1	775	2,285	2,455	3,925	—	8	755	885	725	3,925	—	
		10	1	775	1,825	2,025	3,925	—	—	—	—	—	—	—	
	B-Line B22; B22H1 7/8; B22SH; B22K06.	12	1	775	1,520	1,715	3,925	—	—	—	—	—	—	—	
		16	1	775	1,140	1,390	3,925	—	—	—	—	—	—	—	

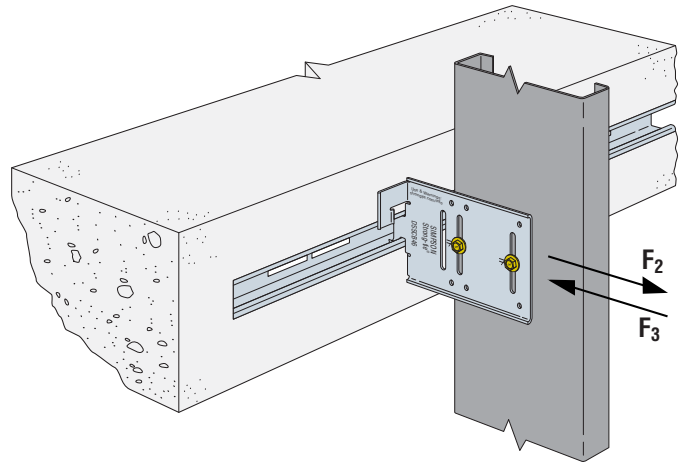
- For additional information, see General Information and Notes on p. 22.
- Allowable anchorage loads are also limited by the DSSCB Connector Load tables on pp. 55 and 57. Use the minimum tabulated values from the connector and anchorage load tables as applicable.
- Allowable loads are based on 97 mil (12 ga.) thickness strut channel members with a minimum yield strength, F_y , of 33 ksi, tensile strength, F_u , of 45 ksi. Tabulated values for Unistrut P4520, 1½" x 3/16" channel may be used for Unistrut channel 1½" x 7/8" models P3300, P33HS and P3300T.
- Allowable loads for self-drilling screws are based on installation in minimum 3/16"-thick structural steel with $F_y = 36$ ksi. Values listed above may be used where other thicknesses of steel are encountered provided that the fastener has equal or better tested values into thicker steel. It is the responsibility of the designer to select the proper length fasteners based on the steel thickness installation.
- For screw fastener installation into steel backed by concrete, predrilling of both the steel and the concrete is suggested. For predrilling, use a maximum 3/16"-diameter drill bit. Screw to be installed through steel portion of channel strut (1.5 x screw diameter from punch-out) and centered vertically in web.
- For any connector occurring within 2" of channel strut splice, load not to exceed — $F_2 = 865$ lb. and $F_4 = 785$ lb.
- Maximum allowable load of strut channel can be increased at high concentrated loads by welding each flange 1 1/2" from the strut channel to support directly at clip location:
For 3/16" strut size — $F_1 = 775$ lb., $F_2 = 1,430$ lb., $F_3 = 2,540$ lb. and $F_4 = 1,050$ lb.
For 1/8" strut size — $F_1 = 775$ lb., $F_2 = 1,870$ lb. and $F_3 = 3,630$ lb.
- Required weld length is on each flange at spacing indicated.
- Anchorage spacing cannot be greater than framing spacing.
- Connector load to be located a minimum of 2" from end of strut channel.
- Simple-span allowable load values are applicable where the strut channel is connected at two points to the structural steel support and the connector load occurs between the fastening points. Multi-span allowable load values are applicable where the strut channel is connected at multiple points (three or more fasteners) to the structural steel support and the connector load can occur in between any of the fastening points.
- Tabulated values for 3/16" strut may be used for 7/8" struts.
- Tabulated F_2 loads include an adjustment factor of 0.90 for pierced strut channels. For pierced strut channels that have an 0.85 adjustment factor, the F_2 loads shall be multiplied by 0.95 factor. No adjustment is required for F_1 , F_3 and F_4 loads.

DSSCB Bypass Framing Drift Strut Connector

Concrete Insert Allowable Load Embedded to Concrete

Strut Size (in.)	Concrete Insert Models for the DSSCB	Embed Spacing (in.)	F ₂ (lb.)	F ₃ (lb.)
1 ³ / ₁₆ or 7/8	Unistrut® 3300 Series B-Line B52I PHD 4101, 4102	4	1,500	2,540
1	PHD 4201, 4202	4	2,000	2,540
1 ¹ / ₂	Unistrut 3200 Series B-Line B32I PHD 4001, 4002	4	2,000	2,540
1 ¹ / ₂	B-Line B22I PHD 4301, 4302	4	2,000	2,540

1. Minimum concrete compressive strength, $f'_c = 3,000$ psi.
2. Multiply tabulated values by a factor of 0.50 when clip is installed within 2" of the end of strut channel.
3. Minimum connector load spacing is 12" o.c.
4. Tabulated values are for concrete inserts with a 12" minimum length.
5. Allowable anchorage loads are also limited by connector load table on p. 55. Use the minimum tabulated value for the connector and the anchorage load tables as applicable.

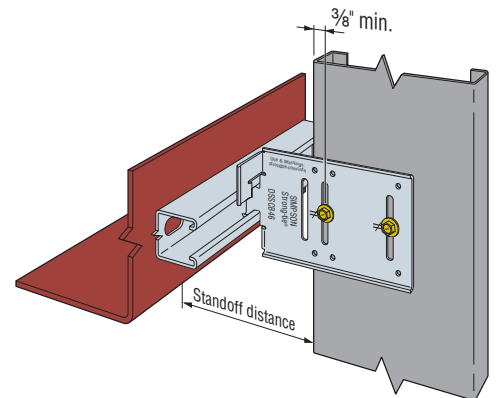


Typical DSSCB Installation
Concrete Insert Application

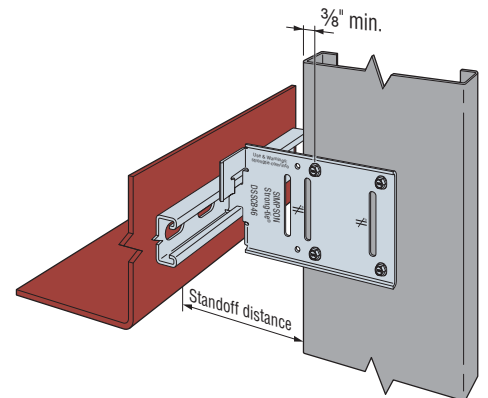
Drift Clips

DSSCB Standoff Distances

Model No.	Application	Screw Pattern	No. of Screws	1 ³ / ₁₆ " Struts		1 ¹ / ₂ " Struts		Concrete Inserts		
				Min. Standoff (in.)	Max. Standoff (in.)	Min. Standoff (in.)	Max. Standoff (in.)	Min. Standoff (in.)	Max. Standoff (in.)	
DSSCB43.5	Slide Clip	A	2	1	2 ⁵ / ₁₆	1 ¹ / ₂	3 ³ / ₈	3/8	1 ¹ / ₂	
DSSCB46		B	3		2 ⁵ / ₁₆				3 ³ / ₈	1 ¹ / ₂
		C	2		2 ⁵ / ₁₆				3 ³ / ₈	1 ¹ / ₂
DSSCB48		D	2		3 ¹ / ₁₆				3 ³ / ₈	2 ¹ / ₄
		E	4		2 ⁵ / ₁₆				3 ³ / ₈	1 ¹ / ₂
		F	3		2 ⁵ / ₁₆				3 ³ / ₈	1 ¹ / ₂
DSSCB43.5		G	3		3 ¹ / ₁₆				3 ³ / ₈	2 ¹ / ₄
	H	4	2 ¹ / ₁₆	—	—					
	I	2	2 ¹ / ₁₆	—	—					
DSSCB46	Fixed Clip	K	6	2 ¹ / ₁₆	—	—				
		L	4	2 ¹ / ₁₆	—	—				
		M	4	3 ⁷ / ₁₆	—	—				
DSSCB48	Fixed Clip	N	8	2 ¹ / ₁₆	—	—				
		O	4	2 ¹ / ₁₆	—	—				
		P	4	3 ⁷ / ₁₆	—	—				



DSSCB Standoff Distance with
1¹/₂" Strut (1³/₁₆" Strut Similar) and
Minimum Fastener Edge Distance
for Slide-Clip Application

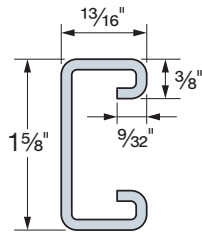


DSSCB Standoff Distance
with 1³/₁₆" Strut and Minimum
Fastener Edge Distance for
Fixed-Clip Application

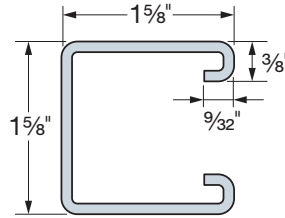
DSSCB Bypass Framing Drift Strut Connector

Drift Clips

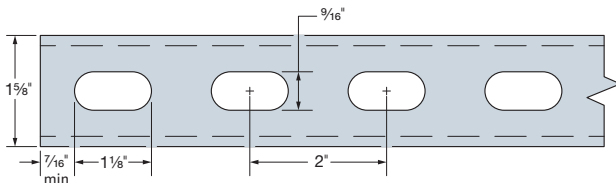
Strut Requirements



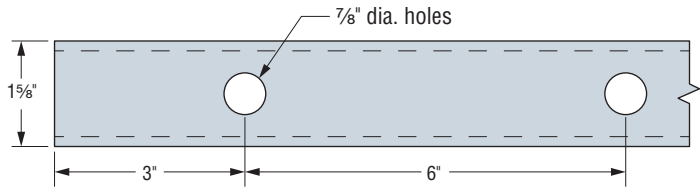
1 3/16" 12 ga. 33 ksi Strut Channel
(by others)



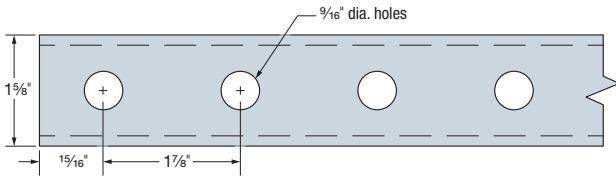
1 5/8" 12 ga. 33 ksi Strut Channel
(by others)



1 1/8" x 9/16" @ 2" o.c. Punchout Pattern



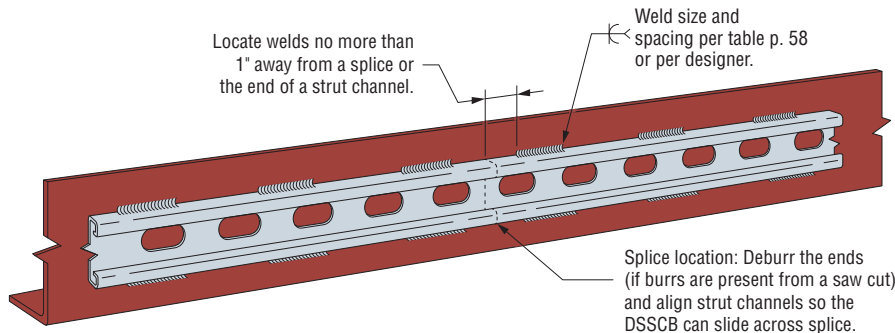
7/8" @ 6" o.c. Punchout Pattern



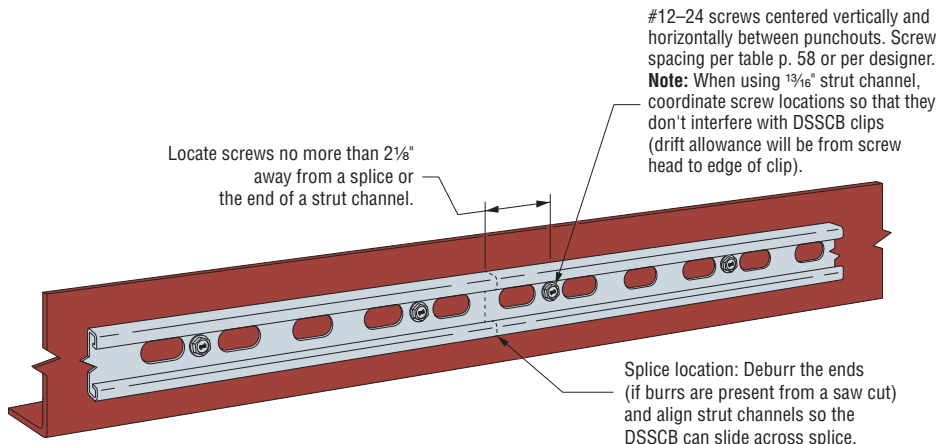
9/16" @ 2" o.c. Punchout Pattern



Unpunched Condition



Typical Strut Channel Anchorage with Welds



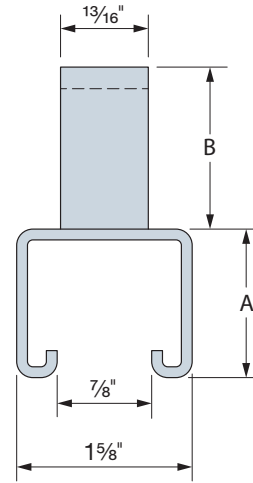
Typical Strut Channel Anchorage with Screws

DSSCB Bypass Framing Drift Strut Connector

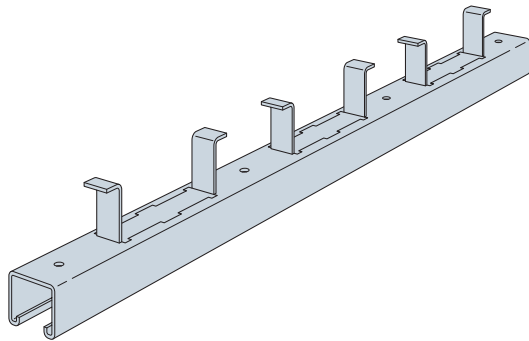
Concrete Insert Requirements

12 ga. 33 ksi Concrete Insert (by others)

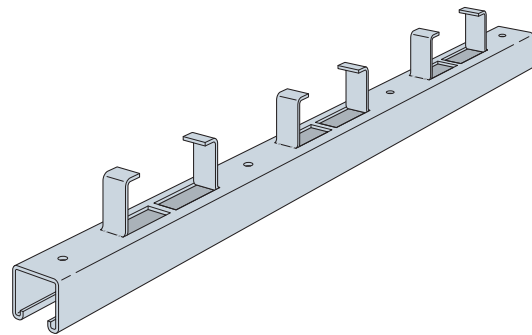
Manufacturer	Model	A	B
Unistrut®	3200	1 3/8"	1 1/2"
	3300	7/8"	1 1/2"
B-Line	B22I	1 5/8"	1 1/2"
	B32I	1 3/8"	1 1/2"
	B52I	1 3/16"	1 1/2"
PHD	4001, 4002	1 3/8"	1 3/16"
	4101, 4102	1 3/16"	1 1/2"
	4201, 4202	1"	1 1/4"
	4301, 4302	1 5/8"	1 1/2"



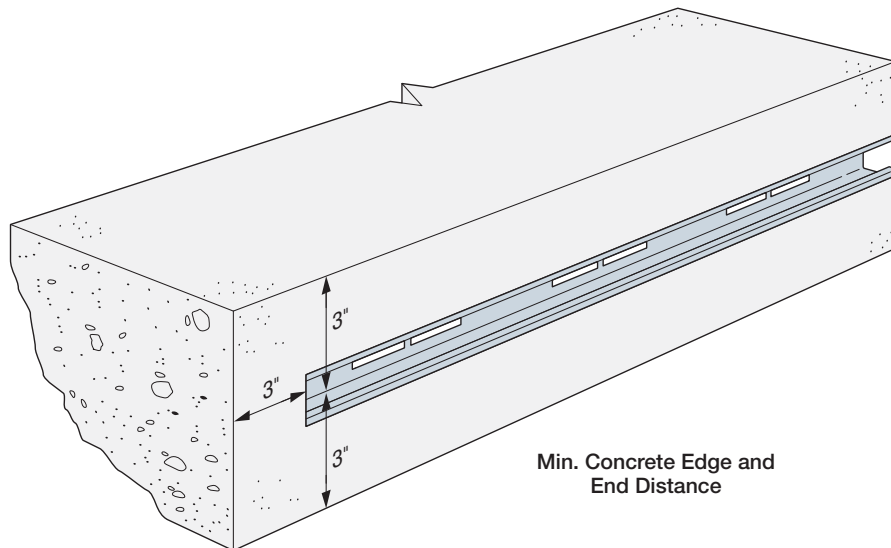
12 ga. 33 ksi Concrete Insert
(by others)



Typical Unistrut Concrete Insert



Typical B-Line and PHD Concrete Insert



Min. Concrete Edge and End Distance