

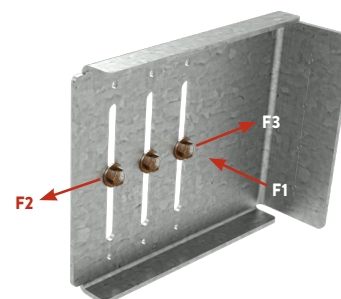
HYBRID BYPASS CLIP DEFLECTION DATA SHEET

HYBRID BYPASS CLIP (HBP) - DESIGN GUIDE

ATTACHMENT TO STRUCTURAL: **DESIGNED BY OTHERS**
ATTACHMENT TO STUD: **AS A DEFLECTION CONNECTION**

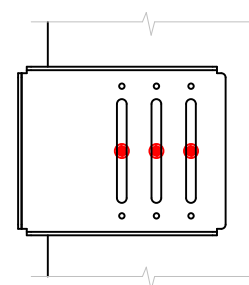
HBP - 12ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	260	1535	1680
	68mil (14ga) 50ksi	280	1535	1680
	97mil (12ga) 50ksi	280	1535	1680
CLIP-HBP8-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	225	1525	1685
	68mil (14ga) 50ksi	225	1525	1685
	97 mil (12ga) 50ksi	225	1525	1685
CLIP-HBP10-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	185	1490	1630
	68mil (14ga) 50ksi	185	1490	1630
	97 mil (12ga) 50ksi	185	1490	1630
CLIP-HBP12-97 97mil (12ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1490	1630
	68mil (14ga) 50ksi	90	1490	1630
	97 mil (12ga) 50ksi	90	1490	1630



HBP - 14ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	255	1280	1430
	68mil (14ga) 50ksi	255	1280	1430
	97mil (12ga) 50ksi	255	1280	1430
CLIP-HBP8-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	190	1235	1340
	68mil (14ga) 50ksi	190	1235	1340
	97 mil (12ga) 50ksi	190	1235	1340
CLIP-HBP10-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	150	1185	1325
	68mil (14ga) 50ksi	150	1185	1325
	97 mil (12ga) 50ksi	150	1185	1325
CLIP-HBP12-68 68mil (14ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1190	1300
	68mil (14ga) 50ksi	90	1190	1300
	97 mil (12ga) 50ksi	90	1190	1300



(3) #14 Deflection Screw Pattern
Shown in a HBP6 Clip

Notes:

- 1 Allowable loads (ASD) listed represent the capacity of the clip to the stud only. (framing connection).
- 2 Allowable Loads have not been increased for the wind, seismic, or other factors.
- 3 An 1/8-in service deflection load limit was applied to clips resisting F2 and F3 loads. In accordance with ICC AC 261, service deflection limit was not applied to clips resisting F1 loads.
- 4 For Deflection connection, one #14 shouldered screw (CLIP-HBP Deflection Screw) shall be installed per slot - placed at the center. (#14 Deflection Screws are provided with each Hybrid Bypass Clip).
- 5 Listed capacities are based on the maximum screw pattern. For maximum screw pattern, fill #14 Deflection screws in each slot for a Deflection Clip.
- 6 It is the responsibility of the design professional to design the attachment of the clips to the structure and verify that their capacity meets the requirements of the intended application.
- 7 Nominal or LRFD loads are available upon request.

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HYBRID BYPASS CLIP

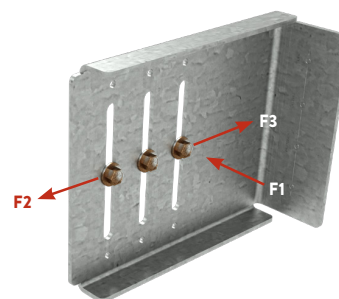
DEFLECTION DATA SHEET

HYBRID BYPASS CLIP (HBP) - DESIGN GUIDE

ATTACHMENT TO STRUCTURAL: **WELDED**
ATTACHMENT TO STUD: **AS A DEFLECTION CONNECTION**

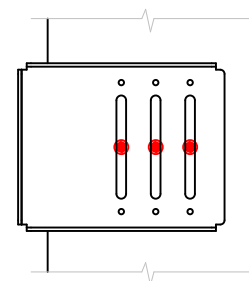
HBP - 12ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	260	1535	1680
	68mil (14ga) 50ksi	280	1535	1680
	97mil (12ga) 50ksi	280	1535	1680
CLIP-HBP8-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	225	1535	1685
	68mil (14ga) 50ksi	225	1535	1685
	97 mil (12ga) 50ksi	225	1535	1685
CLIP-HBP10-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	185	1535	1630
	68mil (14ga) 50ksi	185	1535	1630
	97 mil (12ga) 50ksi	185	1535	1630
CLIP-HBP12-97 97mil (12ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1535	1630
	68mil (14ga) 50ksi	90	1535	1630
	97 mil (12ga) 50ksi	90	1535	1630



HBP - 14ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	255	1275	1430
	68mil (14ga) 50ksi	255	1275	1430
	97mil (12ga) 50ksi	255	1275	1430
CLIP-HBP8-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	190	1275	1340
	68mil (14ga) 50ksi	190	1275	1340
	97 mil (12ga) 50ksi	190	1275	1340
CLIP-HBP10-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	150	1275	1325
	68mil (14ga) 50ksi	150	1275	1325
	97 mil (12ga) 50ksi	150	1275	1325
CLIP-HBP12-68 68mil (14ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1275	1300
	68mil (14ga) 50ksi	90	1275	1300
	97 mil (12ga) 50ksi	90	1275	1300



(3) #14 Deflection Screw Pattern
Shown in a HBP6 Clip

Notes:

- Allowable Loads (ASD) have not been increased for the wind, seismic, or other factors.
- For Deflection clip, one #14 shouldered screw (CLIP-HBP Deflection Screw) shall be installed per slot - placed at the center. Clip gauge-specific #14 HBP Deflection Screws are provided with each Hybrid Bypass Clip.
- Listed capacities are based on the maximum screw pattern. For maximum screw pattern, fill #14 Deflection screws in each slot for a Deflection Clip.
- The Allowable loads listed for welds are based on the following weld lengths:
- (2) Welds - 1" along back of short leg clip bend (each weld equally distanced from center of clip)
- Use E70XX (min.) electrodes.
- It is the responsibility of the design professional to verify that the connection design meets the requirements of the intended application.
- Nominal or LRFD loads are available upon request.

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HYBRID BYPASS CLIP

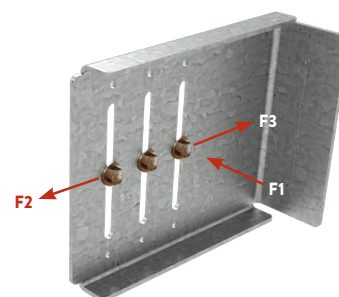
DEFLECTION DATA SHEET

HYBRID BYPASS CLIP (HBP) - DESIGN GUIDE

ATTACHMENT TO STRUCTURAL: (4) #12-24 FASTENERS
ATTACHMENT TO STUD: AS A DEFLECTION CONNECTION

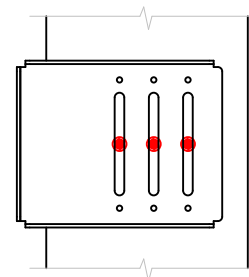
HBP - 12ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	260	1535	1680
	68mil (14ga) 50ksi	280	1535	1680
	97mil (12ga) 50ksi	280	1535	1680
CLIP-HBP8-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	225	1525	1685
	68mil (14ga) 50ksi	225	1525	1685
	97 mil (12ga) 50ksi	225	1525	1685
CLIP-HBP10-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	185	1490	1630
	68mil (14ga) 50ksi	185	1490	1630
	97 mil (12ga) 50ksi	185	1490	1630
CLIP-HBP12-97 97mil (12ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1490	1630
	68mil (14ga) 50ksi	90	1490	1630
	97 mil (12ga) 50ksi	90	1490	1630



HBP - 14ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	255	1280	1430
	68mil (14ga) 50ksi	255	1280	1430
	97mil (12ga) 50ksi	255	1280	1430
CLIP-HBP8-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	190	1235	1340
	68mil (14ga) 50ksi	190	1235	1340
	97 mil (12ga) 50ksi	190	1235	1340
CLIP-HBP10-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	150	1185	1325
	68mil (14ga) 50ksi	150	1185	1325
	97 mil (12ga) 50ksi	150	1185	1325
CLIP-HBP12-68 68mil (14ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1190	1300
	68mil (14ga) 50ksi	90	1190	1300
	97 mil (12ga) 50ksi	90	1190	1300



(3) #14 Deflection Screw Pattern
Shown in a HBP6 Clip

Notes:

- Allowable Loads (ASD) have not been increased for the wind, seismic, or other factors.
- An 1/8-in service deflection load limit was applied to clips resisting F2 and F3 loads. In accordance with ICC AC 261, service deflection limit was not applied to clips resisting F1 loads.
- For Deflection clip, one #14 shouldered screw (CLIP-HBP Deflection Screw) shall be installed per slot - placed at the center. Clip gauge-specific #14 UBC Deflection Screws are provided with each Hybrid Bypass Clip.
- Listed capacities are based on the maximum screw pattern. For maximum screw pattern, fill #14 Deflection screws in each slot for a Deflection Clip.
- #12-24 Fasteners shall be used for attachment to 3/16" steel structure. (4) Fastener configuration shall be used. Screws should be placed at indentations scribed on the short leg of the HBP clip.
- The minimum edge distance for each fastener type shall comply with the fastener manufacturer's recommendation.
- It is the responsibility of the design professional to verify that the connection design meets the requirements of the intended application.
- Nominal or LRFD loads are available upon request.

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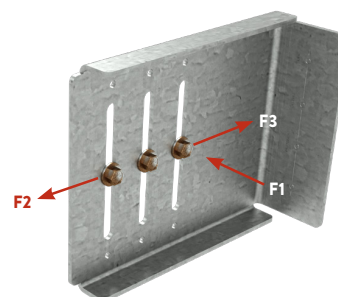
HYBRID BYPASS CLIP DEFLECTION DATA SHEET

HYBRID BYPASS CLIP (HBP) - DESIGN GUIDE

ATTACHMENT TO STRUCTURAL: (4) 0.157" PAFs
ATTACHMENT TO STUD: AS A DEFLECTION CONNECTION

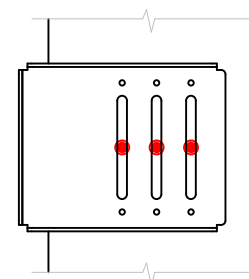
HBP - 12ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	260	1535	1680
	68mil (14ga) 50ksi	280	1535	1680
	97mil (12ga) 50ksi	280	1535	1680
CLIP-HBP8-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	225	1525	1685
	68mil (14ga) 50ksi	225	1525	1685
	97mil (12ga) 50ksi	225	1525	1685
CLIP-HBP10-97 97mil (12ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	185	1490	1630
	68mil (14ga) 50ksi	185	1490	1630
	97mil (12ga) 50ksi	185	1490	1630
CLIP-HBP12-97 97mil (12ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1490	1630
	68mil (14ga) 50ksi	90	1490	1630
	97mil (12ga) 50ksi	90	1490	1630



HBP - 14ga (As a Deflection Connection)

Clip designation	Stud gauge (mils) Yield Strength	ASD Allowable Loads (lbs)		
		F1 (In-Plane) w/ (3) #14	F2 (Tension) w/ (3) #14	F3 (Compression) w/ (3) #14
CLIP-HBP6-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	255	1280	1430
	68mil (14ga) 50ksi	255	1280	1430
	97mil (12ga) 50ksi	255	1280	1430
CLIP-HBP8-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	190	1235	1340
	68mil (14ga) 50ksi	190	1235	1340
	97mil (12ga) 50ksi	190	1235	1340
CLIP-HBP10-68 68mil (14ga)	33mil (20ga) 33ksi	110	605	605
	43mil (18ga) 33ksi	140	905	905
	54mil (16ga) 50ksi	150	1185	1325
	68mil (14ga) 50ksi	150	1185	1325
	97mil (12ga) 50ksi	150	1185	1325
CLIP-HBP12-68 68mil (14ga)	33mil (20ga) 33ksi	90	605	605
	43mil (18ga) 33ksi	90	905	905
	54mil (16ga) 50ksi	90	1190	1300
	68mil (14ga) 50ksi	90	1190	1300
	97mil (12ga) 50ksi	90	1190	1300



(3) #14 Deflection Screw Pattern
Shown in a HBP6 Clip

Notes:

- 1 Allowable Loads (ASD) have not been increased for the wind, seismic, or other factors.
- 2 An 1/8-in service deflection load limit was applied to clips resisting F2 and F3 loads. In accordance with ICC AC 261, service deflection limit was not applied to clips resisting F1 loads.
- 3 For Deflection clip, one #14 shouldered screw (CLIP-HBP Deflection Screw) shall be installed per slot - placed at the center. Clip gauge-specific #14 HBP Deflection Screws are provided with each Hybrid Bypass Clip.
- 4 Listed capacities are based on the maximum screw pattern. For maximum screw pattern, fill #14 Deflection screws in each slot for a Deflection Clip.
- 5 0.157" Hilti X-U PAFs shall be used for attachment to 3/16" steel structure. (4) Fastener configuration shall be used. PAFs should be placed at indentations scribed on the short leg of the HBP clip.
- 6 Capacities considered for Hilti PAFs are based on fastener strengths listed in ICC ESR-2269.
- 7 It is the responsibility of the design professional to verify that the connection design meets the requirements of the intended application.
- 8 Nominal or LRFD loads are available upon request.

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