GENERAL INFORMATION

ARCHITECTURAL ROOF CLIP FASTENERS

PRODUCT DESCRIPTION

Architectural Roof Clip Fasteners offer a low-profile head design for wood and steel applications.

GENERAL APPLICATIONS AND USES

The efficiency of self-drilling fasteners and the aesthetics of an unobtrusive head are ideal for attaching metal roof clips to metal and wood.

FEATURES AND BENEFITS

+ Eliminates separate drilling and tapping operations
+ Pancake head improves aesthetics, prevents panel dimpling
+ Fasteners coated with Stalgard® and Gray Stalgard® finish typically show no red rust or other base metal corrosion on significant surfaces after 1000 hours of 5% neutral salt spray exposure (per ASTM B117)
+ Fasteners Coated with Gray Stalgard® are compatible with ACQ-treated lumber with retention levels no higher than 0.25 pcf

APPROVALS AND LISTINGS

- International Code Council, Evaluation Service (ICC-ES), ESR-3294
- Tested in accordance with ICC-ES AC118 for use in Steel-to-Steel Connections (#10 diameter self-drilling fasteners only)

GUIDE SPECIFICATIONS

05 05 23 – Metal Fastenings, 06 05 23 – Wood, Plastic and Composite Fastening, 09 22 16.23 – Fasteners shall be Architectural Roof Clip Fasteners as supplied by Elco Construction Products, Towson, MD. Fasteners shall be installed with published instructions and the Authority Having Jurisdiction

SECTION CONTENTS

MATERIALS

- Case Hardened Carbon Steel

HEAD STYLES

- Pan Head

DIAMETERS

- #10
- #12

FINISH

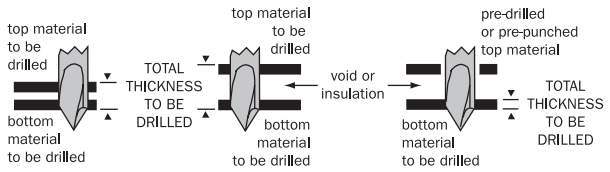
- Stalgard®
- Gray Stalgard®

DRILL POINT TYPES

- #3
- Pierce

CODE LISTED
ICC-ES ESR-3294
STEEL

Point Size Selection
Maximum Combined Material Thickness By Point Type



Maximum Recommended Installation RPM

Diameter	RPM
#10	2500
#12	

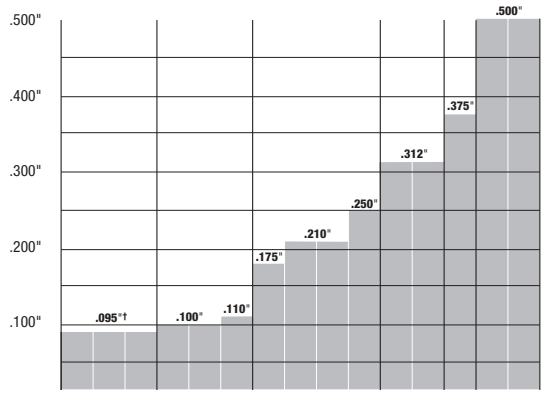
Nominal Sheet Metal Sizes

Gauge	Decimal (in.)
26	0.018
24	0.024
22	0.030
20	0.036
18	0.048
16	0.060
14	0.075
12	0.105

Nominal Screw Sizes

Thread Dia.	Decimal (in.)
#10	.190
#12	.216

Drilling and Tapping Capacity (Maximum Material Thickness)



PERFORMANCE DATA

Fastener Strengths [1,2,3,4,5,6,7]

Description	Point Type	Tension (lbf)			Shear (lbf)			Minimum Torsional Strength (In-lbs)
		Ultimate	ASD	LRFD	Ultimate	ASD	LRFD	
#10-16	#3	2,325	775	1,165	1,560	520	780	61
#12-14	#3	3,210	1,070	1,605	1,785	595	895	92

1. Ultimate strengths are based on laboratory tests.
2. Allowable (ASD) strengths are based on a safety factor ,Ω, of 3.0 in accordance with ICC-ES AC118 and AISI S100-16.
3. Design (LRFD) strengths are based on a resistance factor, ϕ, of 0.50 in accordance with ICC-ES AC118 and AISI S100-16.
4. For ASD tension connections, the lower of the ASD tension strength and ASD pull-out strength must be used for design.
5. For LRFD tension connections, the lower of the LRFD tension strength and LRFD pull-out strength must be used for design.
6. For ASD shear connections, the lower of the ASD shear (bearing) capacity and the ASD fastener shear strength must be used for design.
7. For LRFD shear connections, the lower of the LRFD shear (bearing) capacity and the LRFD fastener shear strength must be used for design.

Ultimate Shear (Bearing) Capacity of Screw Connections, lbf [1,2]

Description	Point Type	Steel Thickness (Lapped Sheets/Bars)							
		26-26 Ga.	24-24 Ga.	22-22 Ga.	20-20 Ga.	18-18 Ga.	16-16 Ga.	14-14 Ga.	12-12 Ga.
#10-16	#3	200	305	430	565	865	1,210	1,690	-
#12-14	#3	210	325	455	600	920	1,290	1,800	2,755

1. Ultimate strengths were calculated in accordance with AISI S100-16 based on steel with a minimum tensile strength of F_u = 45 ksi.
2. Ultimate load capacities must be reduced by a minimum safety factor to determine allowable loads (ASD) or by a load resistance factor to determine strength design capacities (LRFD).

Allowable (ASD) And Design (LRFD) Shear (Bearing) Capacity of Screw Connections (Steel) [1,2,3,4]

Description	Point Type	Minimum Thickness of Steel Not in Contact with Screw Head															
		26-26 Ga.		24-24 Ga.		22-22 Ga.		20-20 Ga.		18-18 Ga.		16-16 Ga.		14-14 Ga.		12-12 Ga.	
		ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD
#10-16	#3	65	100	100	155	145	215	190	285	290	435	405	605	565	845	-	-
#12-14	#3	70	105	110	165	150	230	200	300	305	460	430	645	600	900	920	1,380

1. Allowable (ASD) strengths are based on a safety factor ,Ω, of 3.0 in accordance with ICC-ES AC118 and AISI S100-16.
2. Design (LRFD) strengths are based on a resistance factor, ϕ, of 0.50 in accordance with ICC-ES AC118 and AISI S100-16.
3. For ASD shear connections, the lower of the ASD shear (bearing) capacity and the ASD fastener shear strength must be used for design.
4. For LRFD shear connections, the lower of the LRFD shear (bearing) capacity and the LRFD fastener shear strength must be used for design.

Ultimate Tension Pull-out Capacity of Screw Connections, lbf [1,2]

Description	Point Type	Thickness of Steel Not in Contact with Screw Head							
		26 Ga.	24 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.	14 Ga.	12 Ga.
#10-16	#3	135	205	270	300	420	550	660	1,125
#12-14	#3	140	210	295	345	580	765	1,075	1,550

1. Ultimate strengths are based on laboratory tests.
2. Ultimate load capacities must be reduced by a minimum safety factor to determine allowable loads (ASD) or by a load resistance factor to determine strength design capacities (LRFD).

Allowable (ASD) And Design (LRFD) Pull-out Capacity of Screw Connections (Steel) [1,2,3,4]

Description	Point Type	Minimum Thickness of Steel Not in Contact with Screw Head															
		26 Ga.		24 Ga.		22 Ga.		20 Ga.		18 Ga.		16 Ga.		14 Ga.		12 Ga.	
		ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD	ASD.	LRFD
#10-16	#3	45	65	65	100	90	135	100	150	140	210	180	275	220	330	375	565
#12-14	#3	45	70	70	105	95	145	115	170	190	290	255	380	355	535	515	775

1. Allowable (ASD) strengths are based on a safety factor ,Ω, of 3.0 in accordance with ICC-ES AC118 and AISI S100-16.
2. Design (LRFD) strengths are based on a resistance factor, ϕ, of 0.50 in accordance with ICC-ES AC118 and AISI S100-16.
3. For ASD tension connections, the lower of the ASD tension strength and the ASD pull-out strength must be used for design.
4. For LRFD tension connections, the lower of the LRFD tension strength and the LRFD pull-out strength must be used for design.

Ultimate Tension Pull-out Capacity of Screw Connections (Wood) [1]

Description	Point Type	Material				
		1/2" Plywood	5/8" Plywood	3/4" Plywood	Yellow Pine	3/4" OSB
#10-16	Pierce	365	380	400	580	290
#12-14	Pierce	375	390	425	675	325

1. Ultimate strengths are based on laboratory tests.

ORDERING INFORMATION

Architectural Roof Clip Fasteners

Cat. No.	Description (Diameter - TPI x Nominal Length)	Point Type	Finish	Maximum Load Bearing Length[1] (in.)	Minimum Protrusion Length[2]	Nominal Head Diameter[3] (in.)	Nominal Head Height[4] (in.)	Qty / Carton
#10 DIAMETER, #2 PHILLIPS PANCAKE HEAD								
EDO450-I	#10 - 16 x 1"	#3	STALGARD®	0.500	1/2"	0.437	0.075	4000
EDO460-I	#10 - 16 x 1-1/2"	#3	STALGARD®	1.000	1/2"	0.437	0.075	3000
EDO470-I	#10 - 16 x 2"	#3	STALGARD®	1.500	1/2"	0.437	0.075	2000
ETA850-I	#10 - 12 x 1"	PIERCE POINT	GRAY STALGARD®	-	-	0.437	0.075	4000
ETA855-I	#10 - 12 x 1-1/2"	PIERCE POINT	GRAY STALGARD®	-	-	0.437	0.075	3000
ETA860-I	#10 - 12 x 2"	PIERCE POINT	GRAY STALGARD®	-	-	0.437	0.075	2000
#12 DIAMETER, #2 PHILLIPS PANCAKE HEAD								
EDO735-I	#12 - 14 x 1"	#3	STALGARD®	0.438	9/16"	0.437	0.075	4000
ETA870-I	#12 - 11 x 1"	PIERCE POINT	GRAY STALGARD®	-	-	0.437	0.075	4000

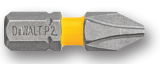
1. Length of Load Bearing Area is calculated by subtracting the Minimum Protrusion Length from the Nominal Length of the fastener.
2. Minimum Protrusion Length is the length that allows the tip and three full threads to protude out of the back side of the supporting material (applies to self-drilling fasteners only).

		Architectural Roof Clip Fasteners	
		 **#3 Point**	 **Pierce Point**
	**DW268** **Scrugun** ***Amps:*** 6.5 ***No-Load Speed:*** 0-2500 rpm ***Clutch:*** Versa Clutch ***Torque:*** 132 in-lbs	#10	
	**DW267** **Scrugun** ***Amps:*** 6.5 ***No-Load Speed:*** 0-2000 rpm ***Clutch:*** Versa Clutch ***Torque:*** 164 in-lbs	#12	
	**DCF622M2** **Cordless Screw Gun** ***Voltage:*** 20V MAX* ***No-Load Speed:*** 0-2000 rpm ***Clutch:*** Versa Clutch ***Drive:*** 1/4" Quick Release Hex ***Torque:*** Adjustable	#10 & #12	

For 20V MAX Maximum initial battery voltage measured without a workload is 20 volts. Nominal voltage is 18.
Architectural Roof Clip Fasteners must be installed perpendicular to the work surface using a maximum 2500 RPM screw gun with a torque sensing nose piece.
Guidance on the installation RPM of particular screw diameters can be found on page 1.

Impact tools are not recommended for the installation of self-drilling screws.

Accessories

DW2046	2" Bit Tip Holder	
DWA1PH2-30	#2 Bit Tip (25 Pack)	
DWA2SLS30	Screwdriving Set	
DWA2FTS25IR	Screwdriving Set