Fastening Systems

POWDERFUL CORROSION DEFENSE POWDER COAT SYSTEM | ZXL NO RED RUST ZAMAC DIE CAST HEAD | MB MICRO-BIT SELF DRILL POINT

ST Advantage

FASTENING AND SEALING SYSTEMS FOR PRE-ENGINEERED AND POST FRAME CONSTRUCTION METAL BUILDING

PRODUCT CATALOG

BUILT STRONG THROUGH™ INNOVATION

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POWDERFUL™

MB™

COATING SYSTEMS

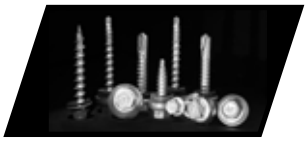
POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM

Powder coating is superior to wet paint in every way. Wet Paint fades while the formulation of POWDERFUL coating will continue to match the metal panels for decades.

Environmentally Friendly , No-VOC'S

DURASEAL+® CORROSION RESISTENT COATING FOR UNPAINTED FASTENERS

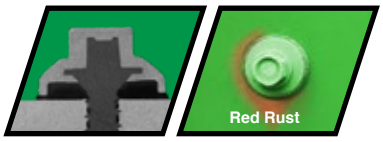
DURASEAL+ corrosion resistent coating is a clear coating for unpainted fasteners. It will protect fasteners from elemental corrosion for decades.



LONG LIFE HEAD SYSTEM

ZXL™ NO RED RUST ZAMAC DIE CAST HEAD

Zinc-Aluminum alloy is impervious to red rust. The warranty on the ZXL matches that of the metal panel, completing the roof "System."



ZXL *Competitor*

DURABLE HEAD SYSTEM

KS V-NECK™ PREVENTS TWIST OFF HEX WASHER HEAD

KS V-NECK design adds strength to prevent head twist off under extreme torque.

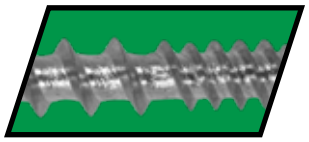
MAXX® SELF DRILL SEALS ANY ANGLE HWH CUPPED HEAD

Maximum pull over strength and positive seal at any angle while protecting the EPDM washer from direct UV sun rays.

THREAD DESIGN

KS LO-ROOT™ PATENTED XTREME HOLD THREAD DESIGN

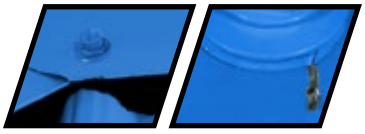
Thread transitions from fine to coarse with superior pullout strength.



POINT DESIGN

MB® MICRO-BIT SELF DRILL POINT

Consistent drilling. Slow drill or no drill screws and pigtails are eliminated.



2+3 HYBRID™ NO POINT WALKING SELF DRILL POINT

Combination 2 and 3 point design–effortless, quick penetration into multilayers without point walking.

StripLoc™ THREAD 2 POINT TECHNOLOGY

Resists the expansion & contraction found in metal roofing applications. Keeps metal panels securely fastened to the OSB. Design greatly reduces the potential for fastener strip out in OSB, enabling the full pullout value to be realized, thus protecting your valuable metal panel investment.

ST ADVANTAGE...VALUE ADDED INNOVATION

Woodbinder® and Steelbinder® fasteners that bear the ST Advantage seal are engineered with multiple unique technologies. When these innovative technologies are combined, they create a synergy of unmatched performance that give ST Advantage fasteners a clear competitive edge.

POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM

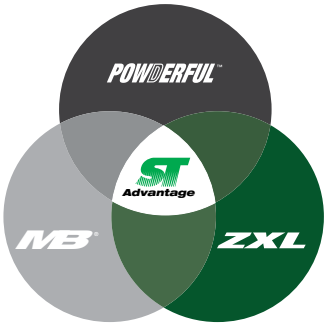
Powderful™ is an innovative process that adds decades to a structure's aesthetic appearance, helping retain its value over the long run.

ZXL™ NO RED RUST. ZAMAC DIE CAST HEAD.

Test results prove that ZXL's unique features add years of durability over the industries top metal building fasteners. The building investment retains its value when installed with ZXL Steelbinder or Woodbinder fasteners longer than traditional carbon steel fasteners, which will not last the life of the metal panel.

MB™ MICRO-BIT SELF DRILL POINT

Total in-place cost is reduced due to no dropped screws due to dull points.



ST GREEN PROGRAM

A sign of our environmentally friendly and sustainable manufacturing processes.

LEAN MANUFACTURING

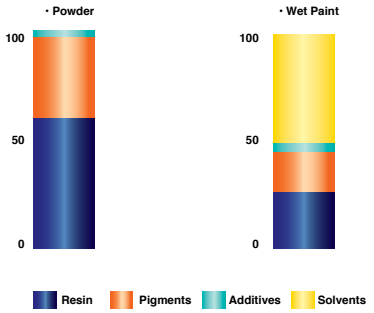
Producing a significant reduction to energy usage and waste materials.

RECYCLING

Washer division recycles EPDM rubber and steel potentially wasted in the production of washers.

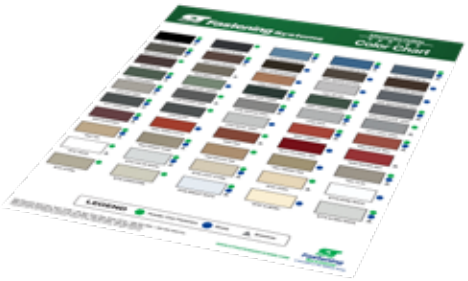
AIR POLLUTION

No harmful VOCs are produced in the manufacturing of powder coated fasteners unlike in the wet paint process.



ST ARCHITECTURAL SERIES

Products come in colors that match popular metal panel colors. The color chart shows the metal panel colors matched to Powderful™ powder coated fasteners, powder coated Snowtrax™ and wet painted ST® Rivet product lines. Roofjack™ and NovaFlex® product colors are not included on this color chart.



BETTER BUILT IN AMERICA

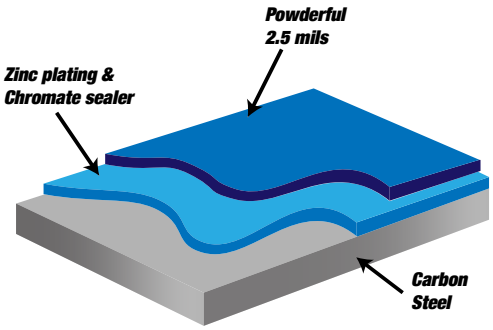
We take pride in knowing American made products command respect and are purchased with confidence solely based on a reputation for quality craftsmanship . As a manufacturer, ST believes that American Built is Stronger Built. All ST engineering innovations are American, and we continue to manufacture, design, and inspect our products with value-added processes in our US plants. The Proudly Assembled or Made in the USA badge is given to products in support of our commitment to this principle. This is why we can feel so confident in our quality.

A ST Fastening System product that carries the PROUDLY MADE IN THE USA logo means it passes the guidelines set forth by the federal trade commission that requires products that claim to be Made in USA must be "all or virtually all" made in the U.S.

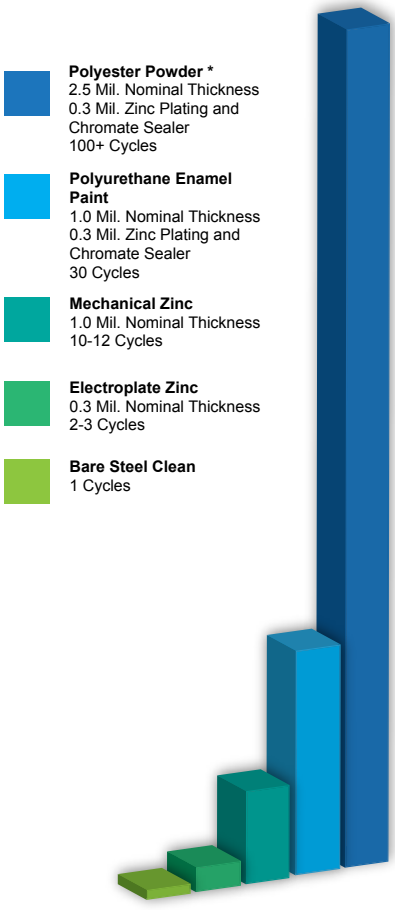
A ST Fastening System product that carries the PROUDLY ASSEMBLED IN THE USA logo means it passes the guidelines set forth by the federal trade commission that requires products that include foreign components but principal assembly takes place in the U.S. are permitted to be called "Assembled in USA" without qualification.

POWDERFUL™

3X UV/Rust Protection



CORROSION RESISTANCE OF POWDER VERSUS OTHER PAINT/COATINGS.



Protects the Fastener and the Environment

The Power of Powder

ST Fastening Systems's innovative powder coating is both friendly to the environment and resistant to the environment. The powder releases no harmful VOCs (Volatile Organic Compounds) into the atmosphere as does solvent based wet paint. There is minimal waste in the process, as the powder is completely recyclable. Any waste generated is non-hazardous & landfill friendly. The corrosion resistance of powder surpasses that of wet paint processes by a wide margin as detailed in the bar graph to the left. Electroplated zinc & wet painted screws will withstand 25-30 cycles in the harsh Kesternich Corrosion Chamber.
One cycle is 8 hours in the corrosion chamber & 16 hours outside it. Some colors of powder applied over zinc plating & chromate sealer will withstand over 100 cycles. Powder is formulated to maintain its color just as the metal panels it is used with maintain their color. It does not chalk & has a UV (ultraviolet) inhibitor that prevents fade. Powder coverage is uniformly applied to the fastener head & washer, & its hard shell finish prevents cracking or scratching. The standard colors included mimic the high volume metal panel colors available today. All powder is analyzed at the ST Fastening Systems's Technical Lab for proper matching to those metal panels.

Durability

Taken head to head, powder coating is superior to wet paint in every way. Powder coating outperforms wet paint in resistance to corrosion, chemicals, heat, impact, abrasion, UV rays and extreme weather conditions. Wet paint fades, while the unique formula of a Powderful™ coating will continue to match the metal panel for decades.

Sustainability

Powderful™ is environmentally friendly. The wet paint process releases 1000's of lbs. of harmful volatile organic compounds into the environment daily, but the powder coating process releases no VOCs or solvents to evaporate into the atmosphere. Powder leaves no footprint on the environment as all the air born powder is filtered and then sent back to the workplace.

The Resulting Benefits to the Customer

- √ **Exceptional corrosion resistance.**
- √ **Excellent color matching to industry standard colors. Colors are formulated at the powder manufacturer to specified industry color standards. Colors are again analyzed at ST Fastening Systems using spectral color analyzer to assure exact matching to the specified standard color as another step in ST Fastening Systems's Quality Assurance procedure. This assures reproducibility of colors from one manufacturing lot to another.**
- √ **Superior weathering characteristics.**
- √ **Powder is formulated to provide the color retention, chalk resistance, and fade resistance expected of the finished building panels.**
- √ **Excellent film hardness. ST Fastening Systems' powder coated fasteners resist scratches and damage during shipping better than conventionally applied wet paints. The overall toughness and heavier coating thickness of the powder finish provides excellent resistance to the abuses of normal installation.**

35 standard colors are available & contained in the new POWDERFUL™ color chart

MAXX™ SteelBinder®

POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM // MAXX® SELF DRILL SEALS ANY ANGLE HWH CUPPED HEAD // 2+3 HYBRID™ NO POINT WALKING SELF DRILL POINT // ST GREEN // ST ARCHITECTURAL SERIES // PROUDLY ASSEMBLED IN THE USA

- Fastener designed to attach metal roof and sidewall panels used in pre-engineered metal building applications.
- #12 Diameter 5/16" Cupped HWH self-drilling fastener easily penetrates steel up to .210" in thickness with no "point walking." 1/4" Stitch will securely fasten panel sidelaps up to 18 ga. panel thickness with no strip-out when installed correctly.
- Cupped head & washer encapsulate EPDM rubber washer & provide a secure seal even when driven at an angle.

ALL UNPAINTED MAXX STEELBINDER® FASTENERS COME STANDARD WITH DURASEAL® PLUS ENHANCED CORROSION RESISTANCE COATING.

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER.

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

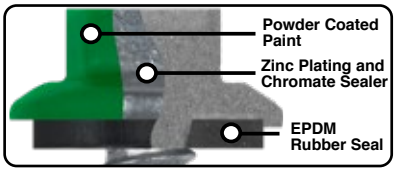
SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
12-14 x 3/4"	5/16" CHWH**	2500	11.3
12-14 x 1"	5/16" CHWH**	2500	13.2
12-14 x 1-1/4"*	5/16" CHWH**	2500	14.8
12-14 x 1-1/2"	5/16" CHWH**	2000	15.5
12-14 x 2"	5/16" CHWH**	1500	18.8
12-14 x 2-1/2"	5/16" CHWH**	1500	21.0
12-14 x 3"	5/16" CHWH**	1000	24.6
1/4-14 x 7/8" STITCH*	5/16" CHWH**	2500	13.4

*Current sizes available with powder coating
**CHWH-Cupped Hex Washer Head

TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	HEAD ACROSS FLATS	NOM. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#12	.181/.177	.215/.209	.164/.157	.560/.545	NOM .312"	2900 LBS.	92 IN.-LBS.	1962 LBS.
1/4" STITCH	.156/.150	.246/.240	.192/.185	.560/.545	NOM .312"	3800 LBS.	150 IN.-LBS.	2850 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL														
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
#12		927	958	1678	N/A	N/A	N/A	N/A	N/A	729	787	1041	1372	N/A	N/A
1/4" STITCH		N/A	N/A	N/A	342	378	418	1038	620	N/A	N/A	N/A	N/A	N/A	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#12		687	1090	1299	1562	N/A	N/A	N/A
1/4" STITCH		746	960	1261	1376	N/A	N/A	N/A



Cupped HWH head design improves Pull over strength versus standard HWH & Bonded Washer. ST Fastening Systems sockets are designed to allow for the added thickness of the powder coat.

Drill point is designed to penetrate steel quickly with no "point walking"

NOTES: 1. HRS (Hot Rolled Steel)
2. Pull over values calculated with EPDM rubber washer assembled to cupped head screw with .555" washer face.
3. All strength values shown are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limits.

ZXL SteelBinder®

POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM // ZXL® NO RED RUST ZAMAC 3 ZINC COAT WASH // 2+3 HYBRID™ NO POINT WALKING SELF DRILL POINT // ST GREEN // ST ARCHITECTURAL SERIES // PROUDLY ASSEMBLED IN THE USA

- Fastener designed to attach long-life metal roof panels such as GALVALUME that are used in pre-engineered metal building applications.
- 5/16" Cupped HWH ZAMAC Zinc-Aluminum Alloy provides lifetime protection against red rust on the head. You may obtain a free copy of the written warranty upon request.
- Washer face design helps to capture rubber EPDM washer even when driven at an angle.
- #12 & 1/4" diameter drill point easily penetrates steel thickness up to .210" with no "point walking". 1/4" Diameter Stitch securely fasten panel sidelaps up to 18 ga. panel thickness with no strip-out.
- Head & washer face are designed to maximize pull over strength.

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
12-14 x 1"	5/16" CHWH**	2000	16.9
12-14 x 1-1/4"	5/16" CHWH**	2000	18.8
12-14 x 1-1/2"	5/16" CHWH**	2000	22.0
12-14 x 2"	5/16" CHWH**	1500	23.1
12-14 x 3"	5/16" CHWH**	1000	31.0
1/4-14 x 1-1/4"	5/16" CHWH**	1500	24.1
1/4-14 x 7/8" STITCH	5/16" CHWH**	2000	17.2

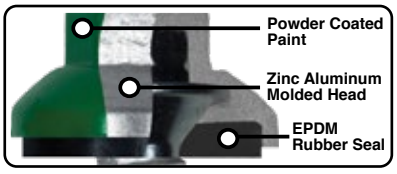
**CHWH-Cupped Hex Washer Head.

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

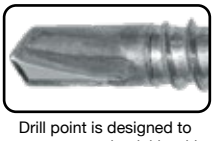
TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	HEAD ACROSS FLATS	NOM. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#12	.181/.177	.215/.209	.164/.157	.630	NOM .312"	1525** LBS.	92 IN.-LBS.	1962 LBS.
1/4"	.156/.150	.246/.240	.192/.185	.630	NOM .312"	1525** LBS.	150 IN.-LBS.	2850 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL														
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
#12		927	958	1525**	N/A	N/A	N/A	N/A	N/A	729	787	1041	1372	N/A	N/A
1/4"		N/A	N/A	N/A	342	378	418	1038	620	N/A	N/A	N/A	N/A	N/A	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#12		803	1091	1393	1525**	N/A	N/A	N/A
1/4"		813	1436	1525**	1525**	N/A	N/A	N/A



The Zinc-Aluminum alloy HWH prevents red rust from ever starting. ST Fastening Systems spring retainer sockets are recommended. ST Fastening Systems sockets are designed to allow for the added thickness of the powder coat.



Drill point is designed to penetrate steel quickly with no "point walking"

NOTES 1. HRS (Hot Rolled Steel)
2. Pull over values calculated with EPDM rubber washer assembled to cupped head screw with .630" washer face.
3. All strength values shown are ultimate values, express in LBS. Apply an appropriate safety factor to obtain design limits.
4. ** Nominal tensile strength value calculated at the point where the ZXL head breaks from the carbon steel body.

HG SteelBinder®

- Fastener lengths over 1-1/4"are designed to penetrate steel thickness up to .500".
- Thread to point ratio engineered to provide maximum pull out strength in heavy gauge steel.
- EPDM rubber is vulcanized to steel washer. Moisture has no place to penetrate. The washer provides a secure seal even when driven at an angle.
- Applications include metal deck to structural steel or bar joists, & retrofit clips to structural steel.
- Fastener is also available without a bonded sealing washer.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
12-24 x 1-1/4"	HWH	2500	12.6
12-24 x 1-1/2"	HWH	2000	16.2
12-24 x 2"	HWH	1500	22.1

LENGTHS LONGER THAN 2 INCHES ARE AVAILABLE BUT NON-STANDARD. CALL FOR PRICE AND AVAILABILITY.

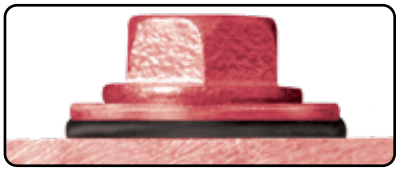
FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER.

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	HEAD ACROSS FLATS	NOM. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#12-24	.199/.195	.215/.209	.164 REF	.432/.398	NOM .312"	2803 LBS.	100 IN.-LBS.	1999 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL													
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
#12-24		N/A	924	1627	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2556	3298

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#12-24 W/ 14 MM BONDED WASHER		N/A	801	996	1258	N/A	N/A	N/A
(.398/.432 HWH DIA.)		N/A	775	956	1078	N/A	N/A	N/A



HWH with EPDM bonded washer provides a secure seal to prevent leaks.

Sharp drill point & long flute length assures proper clearance of heavy gauge metal before any thread engagement begins.

NOTES: 1. HRS (Hot Rolled Steel)
2. All strength values shown are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limits.

ZXL HG SteelBinder®

ZXL™ NO RED RUST ZAMAC 3 DIE CAST HEAD

PROUDLY ASSEMBLED IN THE USA

- Fastener is designed to attach long-life metal roof panels such as GALVALUME to structural steel joists up to .500" thick.
- 5/16" Cupped HWH ZAMAC Zinc-Aluminum Alloy provides lifetime protection against red rust on the head & washer face. A written warranty is available upon request.
- The head & washer face captures the rubber EPDM washer even when driven at an angle & are designed to maximize Pull over strength.
- For structural steel applications, a screwgun with RPM under 2000 is recommended for best performance.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
12-24 x 1-1/4"	5/16" CHWH	2000	25.8/M

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

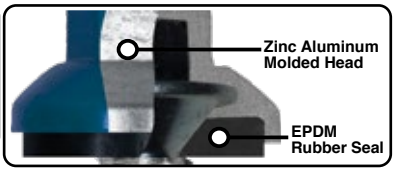
PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

No Red-Rust Guaranteed!

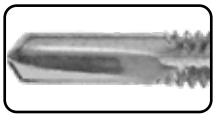
TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	HEAD ACROSS FLATS	NOM. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
12-24	.199/.195	.215/.209	.164 REF.	.630	NOM .312"	1525** LBS.	100 IN-LBS.	1999 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL													
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
12-24		N/A	924	1525**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1525**LBS	

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
12-24		637	1045	1303	1525**	N/A	N/A	N/A



The Zinc-Aluminum alloy HWH prevents red rust from ever starting. ST Fastening Systems spring retainer sockets are recommended. ST Fastening Systems sockets are designed to allow for the added thickness of the powder coat.



Sharp drill point & long flute length assures proper clearance of heavy gauge metal before any thread engagement begins.

NOTES: 1. HRS (Hot Rolled Steel)
2. Pull over values calculated with EPDM rubber washer assembled to cupped head screw with .555" washer face.
3. All strength values shown are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limits.
4. ** The value tabulated is the force at which the ZXL head breaks from the carbon steel body.

ECLIPSE SteelBinder®

- Truss Head with 6–lobe recess driver provides an aesthetic, low-profile appearance on sidewall metal applications installed into metal girts.
- Self-drilling point penetrates steel thickness up to .210"
- Undercut EPDM rubber washer provides a secure seal even when driven at an angle.
- T-30W driver is designed to fit securely into the 6-lobe recess to prevent bit "cam-out."

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
12-14" x 3/4"	TRUSS	2500	10.7
12-14" x 1-1/4"	TRUSS	2500	14.1
1/4"-14" x 7/8" STITCH	TRUSS	2500	13.0

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	NOM. TENSILE STRENGTH	ULT. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#12	.180/.175	.215/.209	.164/.157	.544 T-30 6-Lobe Truss	2900 LBS.	92 IN-LBS.	1962 LBS.
#14	.156/.150	.246/.240	.192/.185	.533/.551 T-30 6-Lobe Truss	3800 LBS.	150 IN-LBS.	2850 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL													
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
#12		927	958	1678	N/A	N/A	N/A	N/A	N/A	729	787	1041	1372	N/A	N/A
#14		N/A	N/A	N/A	342	378	418	1038	620	1038	N/A	N/A	N/A	N/A	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#12		687	1090	1299	1562	N/A	N/A	N/A
#14		746	960	1261	1376	N/A	N/A	N/A

NOTES: 1. *HRS (Hot Rolled Steel)
2. Pull over values calculated with EPDM rubber washer assembled to cupped head screw with .544" washer face.
3. All strength values shown are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limits

The Truss head is 50% lower than a standard HWH & provides a very aesthetic appearance.

T-30W Driver

Drill point is designed to penetrate steel quickly with no "point walking"

HWH SteelBinder®

- Self-drilling screws that are designed for general construction applications.
- Drill points are designed to penetrate a wide variety of metal thicknesses.
- Applications include HVAC, roof deck to steel framing, and roof clips to steel framing.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
8-18 x 1/2"	1/4" HWH	10000	3.6
8-18 x 5/8" w/Nibbs	1/4" HWH	10000	4.0
10-16 x 5/8"	5/16" HWH	5000	5.7
10-16 x 3/4"	5/16" HWH	2500	6.3
10-16 x 1"	5/16" HWH	2500	7.6
12-14 x 3/4"	5/16" HWH	2500	8.4
12-14 x 1"	5/16" HWH	2500	10.0
12-14 x 1-1/4"	5/16" HWH	2500	11.8
12-14 x 1-1/2"	5/16" HWH	2000	13.3
12-14 x 2"	5/16" HWH	1500	16.7
12-14 x 2-1/2"	5/16" HWH	1500	21.4
12-14 x 3"	5/16" HWH	1000	25.0

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
1/4-14 x 7/8" Stitch	5/16" HWH	2500	8.8
1/4-14 x 3/4"	3/8" HWH	2500	12.5
1/4-14 x 1"	3/8" HWH	2500	15.2
1/4-14 x 1-1/4"	3/8" HWH	2000	17.5
1/4-14 x 1-1/2"	3/8" HWH	1500	19.6
1/4-14 x 2"	3/8" HWH	1000	23.8
1/4-14 x 2-1/2"	3/8" HWH	1000	30.0
1/4-14 x 3"	3/8" HWH	1000	33.2
1/4-14 x 4"	3/8" HWH	500	41.9
1/4-14 x 5"	3/8" HWH	500	50.7
1/4-14 x 6"	3/8" HWH	250	53.0

TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	HEAD ACROSS FLATS	NOM. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#1/4-14 (3/8" AF)	.216/.210	.246/.240	.192/.185	.520/.480	NOM .375"	3697 LBS.	150 IN-LBS.	2682 LBS.
#12-14 (5/16" AF)	.180/.175	.215/.209	.164/.157	.432/.398	NOM .312"	2900 LBS.	92 IN-LBS.	1962 LBS.
#1/4-14 (5/16" AF)	.156/.150	.246/.240	.192/.185	.432/.398	NOM .312"	3697 LBS.	150 IN-LBS.	2682 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL													
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
#14-14 (3/8" AF)		986	1070	2003	342	418	486	1038	620	868	890	1107	1327	N/A	N/A
#12-14 (5/16" AF)		927	958	1678	N/A	N/A	N/A	N/A	N/A	729	787	1041	1372	N/A	N/A
#14-14 (5/16"AF)		986	1070	2003	342	418	486	1038	620	868	890	1107	1327	N/A	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#14-14 (3/8" AF) BONDED WASHER (16mm)		N/A	1001	1206	1649	N/A	N/A	N/A
#12-14 (5/16" AF) BONDED WASHER (14mm)		N/A	780	1078	1355	1608	N/A	N/A
#14-14 (5/16"AF) STITCH BONDED WASHER (14mm)		N/A	892	1076	1243	1916	N/A	N/A

NOTES: 1. *HRS (Hot Rolled Steel)
2. All values shown are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limits.

#10 and 1/4" HWH are available with or without a bonded sealing washer. The #12 HWH is available only without a sealing washer. The #12 MAXX™ Steelbinder fastener is available for applications requiring a washer.

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

TAPPING SteelBinder®

- Tapping screws that are designed to be used in light gauge metal or light gauge metal in a pre-drilled hole. See Fastener Selection Guide on page 1 for proper drill bit sizes.
- Screws can be used as replacements for screws that have loosened from steel.
- 5/16" HWH with EPDM bonded sealing washer provides maximum pull over strength in high wind uplift applications.
- EPDM rubber & HH with EPDM bonded sealing is vulcanized to a steel washer to form an excellent seal & will cover any existing hole to prevent leaks from re-occurring.

SIZE	POINT STYLE	HEAD STYLE	CARTON QTY.	WEIGHT /M
17 x 3/4"	TYPE AB	5/16" HWH	2000	14.0
17 x 1"	TYPE AB	5/16" HWH	2000	18.0
17 x 1-1/4"	TYPE AB	5/16" HWH	2000	22.0
17 x 1-1/2"	TYPE AB	5/16" HWH	1500	25.9

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	HEAD ACROSS FLATS	NOM. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
17-14	45° Sharp Point	.280/.273	NOM .220"	N/A	NOM .375"	5160 LBS.	220 MIN.	3952 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL													
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
17-14		1409	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1119	N/A	N/A	N/A	N/A	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
17-14		556	890	1197	1290	N/A	N/A	N/A

NOTES: 1. For metal to wood tapping screws refer to page 12.

ZXL™ TAPPING SteelBinder®

ZXL™ NO RED RUST ZAMAC 3 DIE CAST HEAD

PROUDLY ASSEMBLED IN THE USA

- Type AB fasteners are designed to attach long-life roof panels such as GALVALUME that are used in pre-engineered metal building application. Type A fasteners are designed for use in wood framed buildings.
- Fasteners are also used in retrofit applications in which existing screws have stripped/backed out & need to be replaced with a larger diameter.
- 5/16" Cupped HWH ZAMAC Zinc-Aluminum Alloy provides lifetime protection against red rust on the head & washer face. A written warranty is available upon request.
- The head & washer face captures the rubber EPDM washer even when driven at an angle & are designed to maximize Pull over strength.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
1/4-14 x 3/4" AB	5/16" CHWH	2000	18.2
1/4-14 x 1"AB	5/16" CHWH	2000	19.6
1/4-14 x 1-1/4"AB	5/16" CHWH	2000	21.0
17-14 x 1" AB	5/16" CHWH	1500	23.0

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY USING STEEL PANELS/FRAMING & WOOD DENSITIES WHOSE STRUCTURAL PROPERTIES ARE FOUND IN PRESENT DAY PRODUCTS.

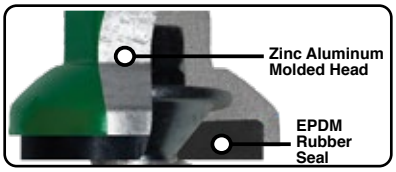
No Red-Rust Guaranteed!

TECHNICAL INFORMATION	DRILL POINT (DIA)	MAJOR DIAMETER	MINOR DIAMETER	WASHER FACE DIAMETER	HEAD ACROSS FLATS	NOM. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
1/4-14	30° Sharp Point	.246/.240	.192/.185	.630	NOM .312"	1525** LBS.	150 MIN.	2850 LBS.
17-14	45° Sharp Point	.282/.273	.220 NOM.	.630	NOM .312"	1525** LBS.	220 MIN.	3952 LBS.

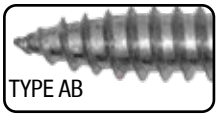
PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL													
		HRS PRIMED ONLY			AZ55 GALVALUME				G-90 GALVANIZED					HRS. PLATE	
	NOM. GAUGE	16	14	12	26	24	22	18	20	18	16	14	12	3/16"	1/4"
	THICKNESS	.060	.075	.105	.018	.024	.030	.048	.036	.048	.060	.075	.105	.187	.250
1/4-14		1181	1265	1525**	N/A	N/A	N/A	N/A	N/A	1055	1073	1396	1525**	N/A	N/A
17-14		1409	1429	1525**	N/A	N/A	N/A	N/A	N/A	1119	N/A	N/A	N/A	N/A	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
1/4-14 (.630 DIA)		886	1287	1525**	1525**	N/A	N/A	N/A
17-14(.630 DIA)		696	1101	1205	1446	N/A	N/A	N/A

NOTES: 1. HRS* (Hot Rolled Steel)
2. Pull over values calculated with EPDM rubber washer assembled to cupped head screw with .630" washer face.
3. All strength values shown are ultimate values, express in LBS. Apply an appropriate safety factor to obtain design limits.
4. ** Ultimate tensile strength value calculated at the point where the ZXL head breaks from the carbon steel body.



The Zinc-Aluminum alloy HWH prevents red rust from ever starting. ST Fastening Systems spring retainer sockets are recommended. ST Fastening Systems sockets are designed to allow for the added thickness of the powder coat.



The AB thread form is designed to provide maximum pull out strength in steel in a pre-drilled hole. See Catalog page 1 for proper drill bit sizes.

KWIKSEAL MB WoodBinder®

POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM | KS V-NECK™ PREVENTS TWIST OFF HEX WASHER HEAD | KS LO-ROOT™ PATENTED XTREME HOLD THREAD DESIGN | MB® MICRO-BIT SELF DRILL POINT | ST ARCHITECTURAL SERIES | PROUDLY ASSEMBLED IN THE USA

- Fastener designed to attach steel roofing & siding used in post-frame & residential metal roofing applications.
- Threads transition from fine to coarse to generate superior holding strength in various wood substrates.
- Micro-Bit™ point reduces metal shavings that can embed themselves in the rubber washer.
- EPDM rubber is vulcanized to a steel washer to form an excellent seal even when driven at an angle.

ALL UNPAINTED WOODBINDER MB FASTENERS COME STANDARD WITH DURASEAL® PLUS ENHANCED CORROSION RESISTANCE COATING
FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
10 x 1"	1/4" HWH	3000	7.8
10 x 1-1/2 "	1/4" HWH	2500	9.9
10 x 2"	1/4" HWH	2000	12.2
10 x 2-1/2"	1/4" HWH	1500	14.3
10 x 3"	1/4" HWH	1000	16.3
12 x 3/4" STITCH	1/4" HWH	2500	8.8

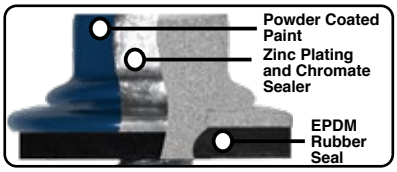
PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS.

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
10-16/8	MICRO-BIT	.205/.191	.121/.116	.348/.322	NOM. .250"	1904 LBS.	56 IN.-LBS.	1547 LBS.
#12-14 STITCH	MICRO-BIT	.215/.209	.160/.153	.348/.322	NOM. .250"	2900 LBS.	88 IN.-LBS.	1962 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE								(1) 1" PENETRATION (2) 1 1/2" PENETRATION			(3) FULL PENETRATION (4) 1/2" PENETRATION		
		HRS PRIMED ONLY			3/4" PLY		5/8" PLY		1/2" PLY		7/16" OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
10-16/8		N/A	N/A	N/A	636	N/A	441	N/A	368	N/A	210	N/A	713	1526	N/A	466	1216	N/A
#12-14 STITCH		N/A	N/A	N/A	N/A	N/A	N/A	297	N/A	329	N/A	217	N/A	N/A	495	N/A	N/A	162

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#10 W/ BONDED 12 MM WASHER		378	629	721	N/A	N/A	N/A	N/A
#12-14 STITCH W/ BONDED 12 MM WASHER		378	629	721	N/A	N/A	N/A	N/A

NOTES: 1. All strength values shown below are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limit



Hex Washer Head with EPDM rubber washer provides a watertight seal on roof applications. ST Fastening Systems sockets are designed to allow for the added thickness of the powder coat.

The combination of the Micro-Bit point & transition thread from fine to coarse generates superior drill speed in metal & holding strength in wood substrates.

ZXL MB WoodBinder®

POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM | ZXL™ NO RED RUST ZAMAC DIE CAST HEAD | KS LO-ROOT™ PATENTED XTREME HOLD THREAD DESIGN | MB® MICRO-BIT SELF DRILL POINT | ST ARCHITECTURAL SERIES | ST GREEN | PROUDLY ASSEMBLED IN THE USA

- Fastener designed to attach steel roofing & siding used in post-frame & residential metal roofing applications.
- 5/16" cupped HWH with a molded ZAMAC Zinc-Aluminum alloy provides lifetime protection against red rust on the head & washer. (You may obtain a free copy of the written warranty upon request.)
- ZXL™ is an excellent choice for GALVALUME & other long-life metal roof panels.
- Threads transition from fine to coarse to generate superior holding strength in various wood substrates.
- Micro-Bit point reduces metal shavings that can embed themselves in the rubber washer.

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
10 x 1"	5/16" CHWH**	3000	12.7
10 x 1-1/2"	5/16" CHWH**	2500	14.7
10 x 2"	5/16" CHWH**	2000	17.0
10 x 2-1/2"	5/16" CHWH**	1500	19.2
10 x 3"	5/16" CHWH**	1000	21.0
12 x 3/4"STITCH	5/16" CHWH**	2500	9.0

**CHWH-Cupped Hex Washer Head.
*** Tabulated value is the force at which the ZXL head breaks from the carbon steel body.

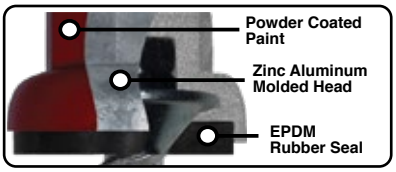
No Red-Rust Guaranteed!

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
10-16/8	MICRO-BIT	.210/.191	.121/116	.500"	NOM .312"	1575** LBS.	60 IN.-LBS.	1574 LBS.
#12-14 STITCH	MICRO-BIT	.215/.209	.160/.153	.500"	NOM .312"	1575** LBS.	88 IN.-LBS.	1962 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE								(1) 1" PENETRATION (2) 1 1/2" PENETRATION			(3) FULL PENETRATION (4) 1/2" PENETRATION		
		HRS PRIMED ONLY			3/4" PLY		5/8" PLY		1/2" PLY		7/16" OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
10-16/8		N/A	N/A	N/A	636	N/A	441	N/A	368	N/A	210	N/A	713	1526	N/A	466	1216	N/A
#12-14 STITCH		N/A	N/A	N/A	N/A	N/A	N/A	297	N/A	329	N/A	217	N/A	N/A	495	N/A	N/A	162

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
10-16/8 (EPDM ONLY)		658	927	1035	1386	N/A	N/A	N/A
#12-14 STITCH SD (EPDM ONLY)		658	927	1035	1386	N/A	N/A	N/A

NOTES: 1. All strength values shown below are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limit



The Zinc-Aluminum alloy HWH prevents red rust from ever starting. ST Fastening Systems spring retainer sockets are designed to allow for the added thickness of the powder coat and are recommended.

The combination of the Micro-Bit point & transition thread from fine to coarse generates superior drill speed in metal & holding strength in wood substrates.

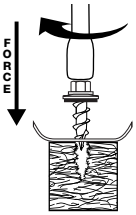
#12 TYPE 17 WoodBinder® The OSB Screw

POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM | KS V-NECK™ PREVENTS TWIST OFF HEX WASHER HEAD | StripLoc™ THREAD 2 POINT TECHNOLOGY | ST ARCHITECTURAL SERIES | ST GREEN | PROUDLY ASSEMBLED IN THE USA

- OSB/Replacement Applications
- Deep, forceful threads that will grip into the soft fibers.
- Color matched Powderful™ coating
- KS V-Neck technology, Hex washer head
- Strip-Loc Thread to Point technology

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER
PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS. TECHNICAL DATA PROVIDED HEREIN IS TO BE USED AS A GUIDE FOR TYPICAL STRENGTH CHARACTERISTICS ONLY.
AN APPROPRIATE FACTOR OF SAFETY MUST BE APPLIED BY THE USER TO OBTAIN ALLOWABLE LIMITS FOR DESIGN.
ALL STRENGTH VALUES SHOWN ARE ULTIMATE VALUES, EXPRESSED IN POUNDS.
DUE TO THE INCONSISTENCY OF OSB, THE #12 OSB SCREW WAS DEVELOPED TO REDUCE STRIPOUT TO ENABLE FULL PULLOUT VALUES TO BE OBTAINED.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
#12 x 3/4"	HEX	2500	8.0
#12 x 1-1/2"	HEX	2500	10.1



Rescue Screw with Anti-Strip Out Technology


Residential


Backyard Sheds

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#12 TYPE 17	Sharp Point	.215/.210	.130/.135	.348/.322	.250 NOM	2450 LBS.	65 IN.-LBS.	2100 LBS.

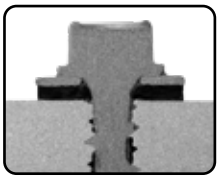
PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE (1) 3/4" PENETRATION (2) 1 1/2" PENETRATION											
		HRS PRIMED ONLY			3/4" PLY		5/8" PLY		1/2" PLY		7/16" OSB		2X Y.PINE		2X SPF	
	NOM. GAUGE	16	14	12												
	THICKNESS	.060	.075	.105	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
#12 TYPE 17		N/A	N/A	N/A	380	585	453	588	297	390	198	212	438	1090	378	739

NOTES: 1-1 /2" LENGTH FULLY PENETRATES OSB AND PLYWOOD SHEETING

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL AZ55 GALVALUME			
	NOM. GAUGE	29	26	24	22
	THICKNESS	.015	.019	.024	.032
#12 TYPE 17 (EPDM WASHER ONLY)		378	629	721	N/A

BMT DENOTES BASE METAL THICKNESS AFTER REMOVAL OF PAINT FINISH AND METALLIC PROTECTIVE COATING.

NOTES: 26 AND 29 GA. VALUES SHOWN WERE OBTAINED USING 80 KSI STEEL SHEETING.
24, 22, AND 20 GA. VALUES WERE OBTAINED USING 50 KSI MINIMUM STEEL SHEETING.


KS V-Neck
Anatomy of the KS V-neck weather tight system


Strip-Loc thread to point technology grips the fiber of OSB

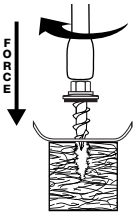
ZXL #12 T-17 WoodBinder® The OSB Screw

POWDERFUL™ CORROSION DEFENSE POWDER COAT SYSTEM | ZXL™ NO RED RUST ZAMAC DIE CAST HEAD | StripLoc™ THREAD 2 POINT TECHNOLOGY | ST ARCHITECTURAL SERIES | ST GREEN | PROUDLY ASSEMBLED IN THE USA

- OSB/Replacement Applications
- Deep, forceful threads that will grip into the soft fibers.
- Color matched Powderful™ coating
- ZXL™ is an excellent choice for GALVALUME & other long-life metal roof panels.
- Strip-Loc Thread to Point technology

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER
PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS. TECHNICAL DATA PROVIDED HEREIN IS TO BE USED AS A GUIDE FOR TYPICAL STRENGTH CHARACTERISTICS ONLY.
DUE TO THE INCONSISTENCY OF OSB, THE #12 OSB SCREW WAS DEVELOPED TO REDUCE STRIPOUT TO ENABLE FULL PULLOUT VALUES TO BE OBTAINED.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
#12 x 1-1/2"	HEX	2500	10.1



Rescue Screw with Anti-Strip Out Technology

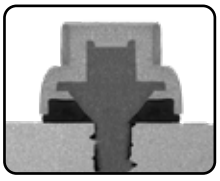

Residential

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#12 TYPE 17	Sharp Point	.215/.210	.130/.135	.500	.305/.311	1575 LBS.*	65 IN.-LBS.	2100 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE (1) 3/4" PENETRATION (2) 1 1/2" PENETRATION											
		HRS PRIMED ONLY			3/4" PLY		5/8" PLY		1/2" PLY		5/8" OSB		7/16" OSB		2X SPF	
	NOM. GAUGE	16	14	12												
	THICKNESS	.060	.075	.105	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
#12 TYPE 17		N/A	N/A	N/A	380	585	453	588	297	390	361	441	198	212	378	739

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL AZ55 GALVALUME			
	NOM. GAUGE	29	26	24	22
	THICKNESS	.015	.019	.024	.032
#12 TYPE 17 (EPDM WASHER ONLY)		658	927	1035	1386

NOTES: 1. *The tabulated value represents the ultimate tensile load at which the ZXL head breaks from the carbon steel fastener body.
2. 1-1/2" Length fully penetrates OSB and Plywood sheeting.
3. 26 and 29 GA values shown were obtained using 80 KSI steel sheeting. 24, 22, and 20 GA values were obtained using KSI minimum steel sheeting.


ZXL
Anatomy of the ZXL weather tight system


Strip-Loc thread to point technology grips the fiber of OSB

SS WoodBinder®

- 304 Stainless Steel cupped head & washer provide lifetime protection in the harshest environments. You may obtain a free copy of the written warranty upon request.
- 304 SS™ Woodbinder® is an excellent choice for use in animal confinement applications or for aluminum liner panel applications.
- Type A point necessitates a pre-drilled hole in steel, but not aluminum.

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS.

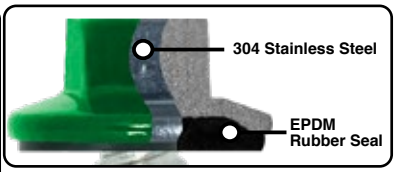
THE USE OF 304 SS SCREWS MAY CAUSE BLISTERING ON ALUMINUM PANELS DUE TO THE MANY DIFFERENT ALLOYS FOUND. CHECK WITH THE ALUMINUM PANEL SUPPLIER FOR PROPER FASTENER RECOMMENDATION.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
10 x 1”	1/4” CHWH	3000	9.0
10 x 1-1/2”	1/4” CHWH	2500	11.9
10 x 2”	1/4” CHWH	2000	14.0

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#10	30° SHARP POINT-A	.183/.189	.126/.132	.500	NOM .250”	1135 LBS.	48 IN.-LBS.	1034 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE (1) 1” PENETRATION (2) 1 1/2” PENETRATION (3) FULL PENETRATION (4) 1/2” PENETRATION													
		HRS PRIMED ONLY			3/4” PLY		5/8” PLY		1/2” PLY		7/16” OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
#10		N/A	N/A	N/A	616	N/A	473	N/A	312	N/A	208	N/A	802	1176	N/A	678	913	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#10 (EPDM WASHER ONLY)		683	870	N/A	N/A	N/A	N/A	N/A



The Type A point will tap a predrilled hole in steel but will self-drill through aluminum liner panels.

NOTES: All strength values shown are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limits.

ST-XL MB WoodBinder®

MB MICRO-BIT SELF DRILL POINT

- Designed as an alternative to the zinc-aluminum alloy head. It is also used to attach steel roofing used in post-frame & residential construction. The smaller cupped HWH provides an attractive low-profile appearance versus larger HWH fasteners.
- 304 Stainless Steel cap provides lifetime warranty against red rust on the head & washer. You may obtain a free copy of the written warranty upon request.
- ST-XL™ is an excellent choice for GALVALUME or other long-life metal roofs.
- The combination of a Micro-Bit™ drills 29 & 26 gauge consistently & eliminates the metal shavings that can embed themselves in the EPDM rubber washer.

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS. THE

USE OF 304 SS SCREWS MAY CAUSE BLISTERING ON ALUMINUM PANELS DUE TO THE MANY DIFFERENT ALLOYS FOUND. CHECK WITH THE ALUMINUM PANEL SUPPLIER FOR PROPER FASTENER RECOMMENDATION.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
9 x 1”	1/4” CHWH*	3000	9.0
9 x 1-1/2 ”	1/4” CHWH*	2500	11.9
9 x 2”	1/4” CHWH*	2000	14.0
9 x 2-1/2”	1/4” CHWH*	1500	16.0
9 x 3 ”	1/4” CHWH*	1000	18.4
12 x 3/4” STITCH	1/4” CHWH*	2500	16.0

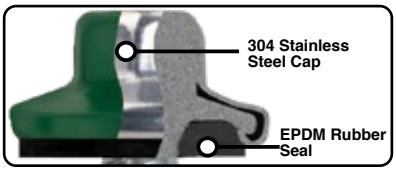
***CHWH-Cupped Hex Washer Head.**

ROLLING CHANGE
The new Micro-Bit will completely replace the Type 17 sharp point as current inventories are depleted. Sizes listed in GREEN will continue to be sharp points, as inventory levels of those turn over at a slower rate.

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#9	MICRO-BIT	.181/.178	.133/.127	.500	NOM .250”	2100 LBS.	48 IN.-LBS.	1800 LBS.
#12-14 STITCH	MICRO-BIT	.215/.209	.164/.157	.500	NOM .250”	2900 LBS.	88 IN.-LBS.	1962 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE (1) 1” PENETRATION (2) 1 1/2” PENETRATION (3) FULL PENETRATION (4) 1/2” PENETRATION													
		HRS PRIMED ONLY			3/4” PLY		5/8” PLY		1/2” PLY		7/16” OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
#9		N/A	N/A	N/A	668	N/A	384	N/A	242	N/A	224	N/A	852	1030	N/A	604	855	N /A
#12-14 STITCH		N/A	N/A	N/A	N/A	260	N/A	233	N/A	202	N/A	164	N/A	N/A	331	N/A	N/A	237

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#9 (EPDM WASHER)		573	726	869	N/A	N/A	380	N/A
#12-14 STITCH (EPDM WASHER)		378	629	721	N/A	N/A	N/A	N/A



ST-XL has a 304 SS Cap on the head and washer. It will never red rust. Cupped head design provides low profile appearance.

The Micro-Bit point is fully threaded to the end and is designed for the quickest penetration through light gauge steel panels.

ECLIPSE MB WoodBinder®

MB MICRO-BIT SELF DRILL POINT

- Round head with 6–lobe recess driver provides an aesthetic, low-profile appearance on sidewall metal applications installed into wood girts.
- Micro-Bit™ point quickly penetrates steel siding and eliminates metal shaving that can embed themselves in the rubber washer.
- Undercut EPDM rubber washer provides a secure seal even when driven at an angle.
- T-25-W driver specially designed to fit securely in the 6-lobe recess with no cam-out or paint damage.

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS.

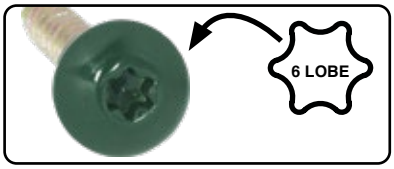
SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
10 x 1”	TRUSS	3000	8.0
10 x 1-1/2”	TRUSS	2500	10.1
10 x 2”	TRUSS	2000	12.2
10 x 2-1/2”	TRUSS	1500	15.4
10 x 3”	TRUSS	1000	17.2

ROLLING CHANGE
The new Micro-Bit will completely replace the Type 17 sharp point as current inventories are depleted. Sizes listed in GREEN will continue to be sharp points, as inventory levels of those turn over at a slower rate.

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#10	MICRO-BIT	.206/.200	.126/.122	.500	N/A	2023 LBS.	75 IN.-LBS.	1653 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE (1) 1” PENETRATION (2) 1 1/2” PENETRATION (3) FULL PENETRATION (4) 1/2” PENETRATION													
		HRS PRIMED ONLY			3/4” PLY		5/8” PLY		1/2” PLY		7/16” OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
#10		N/A	N/A	N/A	536	N/A	420	N/A	379	N/A	190	N/A	929	N/A	N/A	640	N/A	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#10 (EPDM WASHER ONLY)		688	879	N/A	N/A	N/A	N/A	N/A



The Truss head is 50% lower than a standard HWH & provides a very aesthetic appearance.

Micro-Bit point is designed to penetrate steel quickly wit no “point walking.”

T-25-W Driver

#14 TYPE 17 WoodBinder®

- Designed to be used as a “rescue screw”. This fastener will replace nails or smaller diameter fasteners that have loosened & backed out of steel roofing over time.
- 5/16” HWH with bonded sealing washer will completely cover existing hole, even if elongated by movement in the metal roof.
- Type 17 point will help clean the existing hole so that oversized threads can tap & generate maximum holding strength.
- EPDM rubber is vulcanized to the steel washer to prevent delamination & form an excellent seal even when driven at an angle.

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
14 x 1”	5/16” HWH	2000	13.0
14 X 1-1/4”	5/16” HWH	2000	15.7
14 x 1-1/2”	5/16” HWH	1500	17.7
14 x 2”	5/16” HWH	1500	22.3
14 x 2-1/2”	5/16” HWH	1000	26.7

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#14-10	30° SHARP POINT T-17	.254/.248	.185/.178	.398/.432	NOM .312”	4270 LBS.	125 IN.-LBS.	2997 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE (1) 1” PENETRATION (2) 1 1/2” PENETRATION (3) FULL PENETRATION (4) 1/2” PENETRATION													
		HRS PRIMED ONLY			3/4” PLY		5/8” PLY		1/2” PLY		7/16” OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
#14-10		800	1250	2017	723	N/A	487	N/A	391	N/A	227	N/A	856	1669	N/A	594	1235	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#14 -10 (14MM O.D. BONDED WASHER)		495	780	1078	1355	1608	N/A	N/A
#14-10 (W/ NO WASHER)		N/A	722	1040	1197	1419	N/A	N/A

Hex Washer Head with EPDM rubber will completely cover the existing hole to provide a watertight seal.

The Type 17 point will clean the existing hole of metal burrs & the oversized threads will generate increased holding strength.

NOTES: All strength values shown below are ultimate values, expressed in LBS. Apply an appropriate safety factor to obtain design limits.

TAPPING WoodBinder®

- Tapping screws that are designed to be used in wood or light gauge metal in a pre-drilled hole. See Fastener Selection Guide on page 1 for proper drill bit sizes.
- Screws can be used as replacements for nails or screws that have loosened from wood or steel.
- 3/8" HWH with EPDM bonded sealing washer provides maximum pull over strength in high wind uplift applications.
- EPDM rubber & HWH with EPDM bonded washer is vulcanized to a steel washer to form an excellent seal & will cover any existing hole to prevent leaks from re-occurring.

SIZE	POINT STYLE	HEAD STYLE	CARTON QTY.	WEIGHT /M
14 x 3/4"	TYPE A	3/8" HWH	2500	16.5
14 x 1"	TYPE A	3/8" HWH	2000	16.9
14 x 1-1/4"	TYPE A	3/8" HWH	2000	17.6
14 x 1-1/2"	TYPE A	3/8" HWH	1500	24.6
14 x 2"	TYPE A	3/8" HWH	1500	26.0
14 x 2-1/2"	TYPE A	3/8" HWH	1000	30.8
14 x 3"	TYPE A	3/8" HWH	1000	35.9

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS.

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#14-10 HWH TYPE A	30° SHARP POINT T-A	.254/.248	.185/.178	.500	NOM .375"	4270 LBS.	125 IN.-LBS.	2997 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE								(1) 1" PENETRATION (2) 1 1/2" PENETRATION			(3) FULL PENETRATION (4) 1/2" PENETRATION		
		HRS PRIMED ONLY			3/4" PLY		5/8" PLY		1/2" PLY		7/16" OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
#14-10 HWH TYPE A		800	1250	2017	723	N/A	487	N/A	391	N/A	227	N/A	856	1669	N/A	594	1235	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#14-10 HWH TYPE A (16mm O.D. bonded washer)		N/A	1001	1206	1649	N/A	N/A	N/A

NOTES: For metal to metal tapping screws refer to page 7.

ZXL TAPPING WoodBinder®

PROUDLY ASSEMBLED IN THE USA

ZXL NO RED RUST ZAMAC DIE CAST HEAD

- Type AB fasteners are designed to attach long-life roof panels such as GALVALUME that are used in pre-engineered metal building application. Type A fasteners are designed for use in wood framed buildings.
- Fasteners are also used in retrofit applications in which existing screws have stripped/backed out & need to be replaced with a larger diameter.
- 5/16" Cupped HWH ZAMAC Zinc-Aluminum Alloy provides lifetime protection against red rust on the head & washer face. A written warranty is available upon request.
- The head and washer face captures the rubber EPDM washer even when driven at an angle and is designed to maximize pull over strength.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
14-10 x 1-1/2" A	5/16" CHWH	1500	23.0

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

PULLOUT & PULLOVER VALUES ARE DETERMINED IN THE ST FASTENING SYSTEMS ENGINEERING LABORATORY & BASED UPON WOOD DENSITIES FOUND IN PRESENT DAY WOOD PRODUCTS.

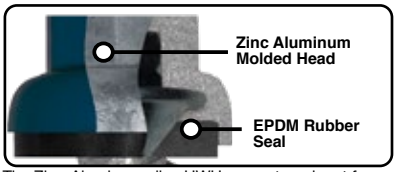
No Red-Rust Guaranteed!

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#14-10	30° SHARP POINT	.254/.248	.185/.178	.630	NOM .312"	1525** LBS.	125 IN.-LBS.	2997 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL			SUBSTRATE								(1) 1" PENETRATION (2) 1 1/2" PENETRATION			(3) FULL PENETRATION (4) 1/2" PENETRATION		
		HRS PRIMED ONLY			3/4"PLY		5/8" PLY		1/2" PLY		7/16" OSB		2X Y.PINE			2X SPF		
	NOM. GAUGE	16	14	12														
	THICKNESS	.060	.075	.105	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(1)	(2)	(4)	(1)	(2)	(4)
#14-10		1181	1265	1525**	707	N/A	554	N/A	391	N/A	238	N/A	828	1525**	N/A	594	1235	N/A

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#14-10 (EPDM WASHER ONLY)		886	1287	1525**	1525**	N/A	N/A	N/A

NOTES: 1. HRS* (Hot Rolled Steel)
2.Pull over values calculated with EPDM rubber washer assembled to cupped head screw with .630" washer face.
3. All strength values shown are ultimate values, express in LBS. Apply an appropriate safety factor to obtain design limits.
4. ** Ultimate tensile strength value calculated at the point where the ZXL head breaks from the carbon steel body.



The Zinc-Aluminum alloy HWH prevents red rust from ever starting. ST Fastening Systems spring retainer sockets are designed to allow for the added thickness of the powder coat and are recommended.

The Type A is designed for wood. See Catalog page 1 for proper drill bit sizes.

ST Clip Screw — Metal to Wood

- #10 Diameter is designed to attach standing seam roof clips to plywood, OSB, or wood purlins.
- Low profile head design provides excellent pull over strength.
- Thin Wafer Head is designed for standing seam panels that utilize no clip but require a very thin head so as not to dimple the roof panel.
- Available in Ruspert® corrosion resistant coated carbon steel or 304 stainless steel

MIAMI-DADE COUNTY APPROVED

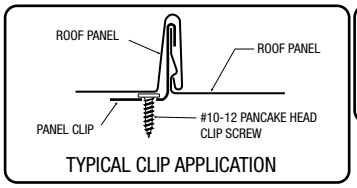
***In compliance with Dade County TAS 114 Appendix E for Ferrous Fasteners**

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
10 x 1" PANCAKE TYPE 17	#2 SQUARE/PHILLIPS COMBO	3000	7.0
10 x 1-1/2" PANCAKE TYPE 17	#2 SQUARE/PHILLIPS COMBO	2500	9.0
10 x 1" PANCAKE TYPE 17	#2 SQUARE DRIVE HEAD	3000	7.0
10 x 1-1/2" PANCAKE TYPE 17	#2 SQUARE DRIVE HEAD	2500	9.0
10 x 2" PANCAKE TYPE 17	#2 SQUARE DRIVE HEAD	2000	10.2
10 x 1" WAFER SHARP POINT	#2 SQUARE/PHILLIPS COMBO	3000	5.0
10 x 1-1/2" WAFER SHARP POINT	#2 SQUARE/PHILLIPS COMBO	2500	7.0
10 x 2" WAFER SHARP POINT	#2 SQUARE/PHILLIPS COMBO	2000	9.0
10 x 1" 304 SS SHARP POINT	#2 SQUARE/PHILLIPS COMBO	3000	7.0
10 x 1-1/2" 304 SS SHARP POINT	#2 SQUARE/PHILLIPS COMBO	2500	9.0

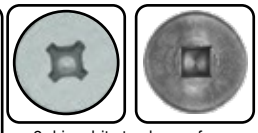
TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#10 PANCAKE TYPE 17	30° T-17	.204/.198	.128/.122	.447/.423	N/A	1981 LBS.	66 IN-LBS.	1428 LBS.
#10 WAFER	30° SHARP POINT	.204/.198	.128/.122	.447/.423	N/A	1981 LBS.	66 IN-LBS.	1428 LBS.
#10 PANCAKE 304 SS	30° SHARP POINT	.194/.188	.133/.126	.440 NOM.	N/A	1450 LBS.	48 IN-LBS.	1113 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		SUBSTRATE (1) 1" PENETRATION (2) 1 1/2" PENETRATION (3) FULL PENETRATION (4) 1/2" PENETRATION										
		MATERIAL										
		HRS PRIMED ONLY			3/4" PLY	5/8" PLY	1/2" PLY	7/16" OSB	2X Y.PINE		2X SPF	
	NOM. GAUGE	16	14	12								
	THICKNESS	.060	.075	.105	(3)	(3)	(3)	(3)	(2)	(1)	(2)	(1)
#10 PANCAKE T-17		N/A	N/A	N/A	684	435	352	218	N/A	868	N/A	597
#10 WAFER		N/A	N/A	N/A	684	435	352	218	N/A	868	N/A	597
#10 PANCAKE 304 SS		N/A	N/A	N/A	544	424	335	182	N/A	779	N/A	719

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	.014	.018	.024	.030	.036	.028	.014
#10 PANCAKE T-17		529	779	1128	1512	N/A	N/A	N/A
#10 WAFER		N/A	N/A	N/A	N/A	N/A	N/A	685
#10 PANCAKE 304 SS		529	779	1128	1512	N/A	N/A	N/A



TYPICAL CLIP APPLICATION


2 driver bits to choose from.

ST Clip Screw — Metal to Metal

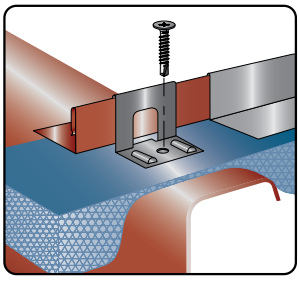
- A self-drilling Pancake Head is available to attach standing seam roof clips to steel framing.
- Low profile head design provides excellent pull over strength.
- Ruspert® corrosion resistant coating is standard on all Clip Screws.

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
10 x 1" SD CARBON STL.	#2 SQUARE/PHILLIPS Combo	3000	7.0
10 x 1-1/2" SD CARBON STL.	#2 SQUARE/PHILLIPS Combo	2500	9.0

TECHNICAL INFORMATION	POINT DIAMETER	MAJOR DIAMETER	MINOR DIAMETER	HEAD DIAMETER	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
#10-16 PANCAKE SD	.151/.156	.189/.183	.135/.141	.443/.423	1920	61 IN-LBS.	1633 LBS.

PULL OUT STRENGTH (LBS. ULT.)	SUBSTRATE				
	HRS PRIMED ONLY			G-90 GALVANIZED	
	16	14	12	18	20
#10-16 PANCAKE SD	830	1006	1495	731	

PULL OVER STRENGTH VALUE (LBS. ULT.)	DESIGNATION	MATERIAL			
		AZ55 GALVALUME			
	NOM. GAUGE	29	26	24	22
	THICKNESS	.015	.019	.024	.032
#10-16 PANCAKE SD		529	779	1128	1512



ST® ReamerScrews

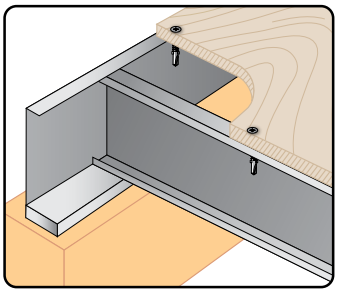
- Family of screws designed to attach plywood & dimensional lumber to steel thickness up to .250”
- Small wings help bore a clearance hole to help prevent premature thread engagement in the wood. The wings break off after drilling is completed.
- Wafer head design is used for plywood applications. Flat head design is used for lumber applications.
- Applications include flooring in steel frame homes & truck body beds.

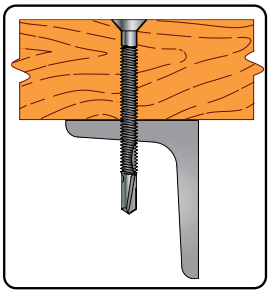
SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
10-16 x 1-5/8”	#2 Square/Phillips Combo	3500	9.2/M
12-24 x 2”	#3 PFH	2000	17.5/M
12-24 x 2-1/2”	#3 PFH	2000	19.5/M
1/4-20 x 2-3/4”	#3 PFH	1500	28.6/M
1/4-20 x 3-1/4”	6 LOBE	1000	35.0/M

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	HEAD DIAMETER	POINT DIAMETER	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
10-16	WINGED SD	.189/.183	.141/.135	.440 NOM.	.156/.151	1920 LBS.	61 IN-LBS.	1633 LBS.
12-24	WINGED SD	.216/.209	.165 REF.	.389 NOM.	.191/.197	2800 LBS.	100 IN-LBS.	2000 LBS.
1/4-20	WINGED SD	.250/.242	.187 REF.	.507/.452	.226/.220	4270 LBS.	168 IN-LBS.	3000 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		MATERIAL					
		HRS PRIMED ONLY			A36 HRS**		G-90 GALVANIZED
	NOM. GAUGE	16	14	12	3/16”	1/4”	18
	THICKNESS	.065	.070	.106	.187	.250	.047
10-16		847	916	1085	1920*		587
12-24		832	947	1480	2582	2800*	
1/4-20		970	1165	1838	3145	4270*	

PULL OVER STRENGTH VALUE (LBS. ULT.)	MATERIAL	DESIGNATION	CDX PLYWOOD	2 x YELLOW PINE
	WASHER/ HEAD DIAMETER	THICKNESS	15/32” (NOM 1/2”)	(1.5 ACTUAL)
10-16 (NOTE 3)			596 (NOTE 1)	680
12-24				1302
1/4-20				1383





NOTES:
1. Wafer head flanges broke during pull over testing in nom. 1/2” plywood value tabulated 1/2” plywood for represents the ultimate strength of the fastener. Pull over strength for plywood thickness is greater than 1/2” can be considered same value as tabulated (596 lbs. ult.)
2. Technical data provided herein is to be used as a guide for typical strength characteristics only. All strength values shown are ultimate values expressed in pounds. An appropriate factor of safety must be applied by the user to obtain allowable limits for design.
3. Max. plywood thickness for use with this reamer fastener is 3/4.”
4. Square/Phillips Combo Head available on #10 Diameter.

InsulDrill™

- #12 diameter screw has ¼’ HWH. Thread design has excellent holding strength in wood.
- #1 drill point will penetrate steel thickness up to 18 gauge.
- Black e-coat corrosion resistant coating is standard on all screws.
- G-90 bonded sealing washer is assembled to the fastener.
- Applications include retrofit & metal panels through rigid insulation to wood.
- Screws are available in all standard ST Fastening Systems colors (wet-paint process).

FOR PROPER INSTALLATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED FOR POWDER COATED OR ANY WET PAINTED FASTENER

SIZE	HEAD STYLE	CARTON QTY.	WEIGHT/M
12 x 3 3/4”	HWH	1000	26.5
12 x 4 1/2”	HWH	1000	30.7
12 x 5”	HWH	1000	33.4
12 x 6”	HWH	500	39.0
12 x 7”	HWH	500	43.7
12 x 8”	HWH	500	49.7

TECHNICAL INFORMATION	DRILL POINT	MAJOR DIAMETER	MINOR DIAMETER	WASHER/HEAD DIAMETER	HEAD ACROSS FLATS	ULT. TENSILE STRENGTH	MIN. TORSIONAL STRENGTH	NOM. SHEAR STRENGTH
# 12 Diameter	SELF-DRILL	.215 NOM.	.130 NOM.	.400 NOM.	.250 NOM.	*1723 LBS.	125 IN-LBS.	1324 LBS.

PULL OUT STRENGTH VALUE (LBS. ULT.)		GALVANIZED STEEL					SUBSTRATE				(1) FULL PENETRATION (2) 1” PENETRATION	
	NOM. GAUGE	18	20	22	24	26	3/4 PLY	5/8 PLY	1/2 PLY	7/16 OSB	2x Y.PINE	2x Y. PINE
	THICKNESS	.047	.038	.031	.024	.019	(1)	(1)	(1)	(1)	(1)	(2)
# 12 Diameter		653	489	406	319	263	795	564	457	177	1605	976

PULL OVER STRENGTH VALUE (LBS. ULT.) (EPDM ONLY)	DESIGNATION	MATERIAL						
		AZ55 GALVALUME				G90	ALUMINUM	SLOT EDGE PANEL
	NOM. GAUGE	29	26	24	22	20	21	29
	THICKNESS	0.015	0.019	0.024	0.032	0.038	0.028	0.0175
BONDED WASHER (.472” Dia) (12mm)		671	845	N/A	N/A	N/A	N/A	N/A

NOTES:
1.*Tensile strength shown represents ultimate load at which the integral washer brakes from the hex washer head.
2. 26 and 29 GA. values shown were obtained using 80 KSI steel sheeting. 24, 22, 20, and 18 GA. values were obtained using 50 KSI minimum steel sheeting.

ST® Rivet

- Open-end blind rivet is designed to attach 2 thin pieces of metal for a low profile appearance.
- Applications include metal roofing ridge-caps, roof gutters & downspouts.
- 304 Stainless Steel, Carbon Steel, & Aluminum are available.
- Painted #43 Stainless are available to match most architectural panel colors.
- Color chart available upon request.

SIZE	CARTON QTY.	WEIGHT/M
SSD43**	1000	3.0
SD42*	1000	2.9
SD44*	1000	3.3
AD42*	1000	1.1
AD44*	1000	1.3
AD46*	1000	1.4
AD66*	1000	3.4
SSD42*	1000	2.9

* Sizes listed are non-stock items & only available unpainted
Call for price & availability.
** In stock painted to match most architectural panel colors

TABLE I: DIMENSIONS OF ST FASTENING SYSTEMS RIVET	RIVET SERIES NO.	NOM. RIVET SIZE	D BODY DIAMETER MAX.	D BODY DIAMETER MIN.	H HEAD DIAMETER MAX.	H HEAD DIAMETER MIN.	W MANDREL DIAMETER	F BLIND SIDE PROJ.	E HEAD HEIGHT	L BODY LENGTH
	4	1/8"	.128	.122	.262	.207	.076	L+.120	.040	SEE TABLE II
	5	5/32"	.159	.153	.328	.238	.095	L+.140	.050	SEE TABLE II
	6	3/16"	.191	.183	.394	.356	.114	L+.160	.060	SEE TABLE II

ST FASTENING SYSTEMS STANDARDS (**)	S =	STEEL BODY / STEEL MANDREL	A =	ALUMINUM BODY / ALUMINUM MANDREL	SS =	STAINLESS STEEL BODY / STAINLESS STEEL MANDREL

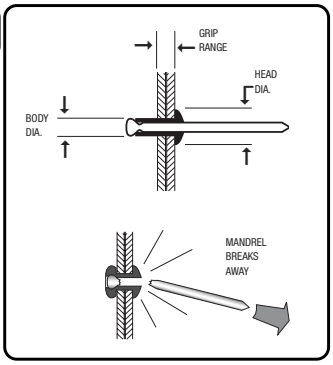


TABLE II: APPLICATION DATA	RIVET SERIES NO.	NOM RIVET SIZE	RECOMMENDED DRILL SIZE	RIVET NO.	MATERIAL REFERENCE (**)	GRIP RANGE (T) MIN.	GRIP RANGE (T) MAX.	BODY LENGTH (L)
	4	1/8"	#30 (.129)	42	S, A,	.063	.125	.275
				43	SS	.126	.187	.337
				44	S, A, SS	.188	.250	.400
				46	S	.313	.375	.525
	5	5/32"	#20 (.161)	52	---	.020	.125	.300
				53	S. A	.126	.187	.362
				54	---	.188	.250	.425
				56	---	.313	.375	.550
	6	3/16"	#11 (.191)	66	SS, A	.251	.375	.575

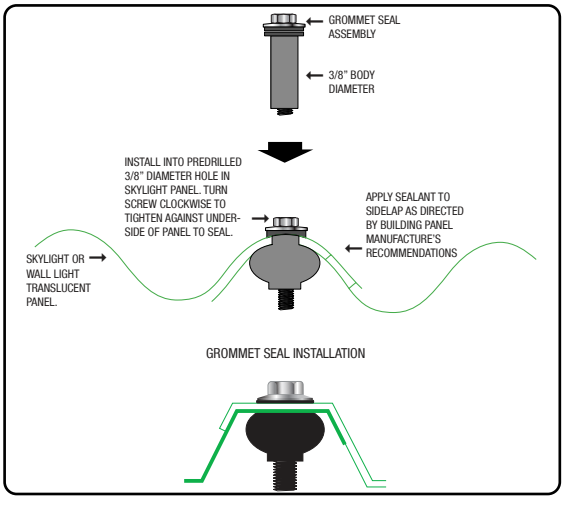
TABLE III: MECHANICAL PROPERTIES OF ST FASTENING SYSTEMS RIVETS	RIVET SERIES NO.	GRADE DESIGNATION	RIVET BODY MATERIAL	MANDREL MATERIAL	ULTIMATE SHEAR (LBS. MIN.)	ULTIMATE TENSILE (LBS. MIN.)	PULL-OUT IN 18 GA. MIN. (ACTUAL TESTED TENSILE STRENGTH)
	4	10	ALUMINUM	ALUMINUM	120	150	189 LBS.
		30	STEEL	STEEL	260	310	437 LBS.
		51	STAINLESS STEEL	STAINLESS STEEL	420	530	643 LBS.
	5	10	ALUMINUM	ALUMINUM	190	230	254 LBS.
		30	STEEL	STEEL	370	470	491 LBS,
		51	STAINLESS STEEL	STAINLESS STEEL	650	820	886 LBS.
	6	10	ALUMINUM	ALUMINUM	260	320	471 LBS.
		30	STEEL	STEEL	540	680	----
		51	STAINLESS STEEL	STAINLESS STEEL	950	1200	1570 LBS.

NOTES: 1. Tensile and shear data tabulated represents minimum ultimate required values as tabulated in IFI - 114 standard for break mandrel blind rivets.
2. Only ST Fastening Systems standard rivets are shown on this document. Contact ST Fastening Systems for values for rivets of other sizes and material types.

ST® Grommet

- Grommet consists of 316 Stainless Steel machine screw, 304 Stainless Steel bonded washer, & internally threaded rubber sleeve with preassembled nut.
- As the fastener is tightened, the rubber sleeve expands to provide a gasketing effect on the bottom side of the pre-drilled hole.
- Applications include fastening fiberglass sheets together or other dissimilar materials that are prone to extensive expansion & contraction due to temperature changes.
- 316 Series Stainless Steel bonded washer is available as an option.

MATERIAL & GROMMET DIAMETER	FASTENER HEAD AND LENGTH	BOX QTY.	WEIGHT LBS. PER 1000 PCS.
316 STAINLESS (3/8")	5/16" HH* x 1 1/4"	2500	17.5



GROMMET SEAL INSTALLATION

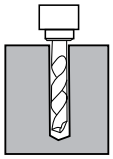
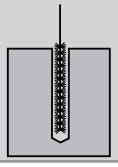
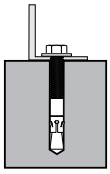
GROMMET SPECIFICATIONS				
SIZE	BODY LENGTH	NUT INSERT	DUROMETER (SLEEVE)	ULTIMATE TENSILE
3/8" x 1"	.812	10-32	60	80 LBS.
3/8" x 1 1/2"	.812	10-32	60	80 LBS.

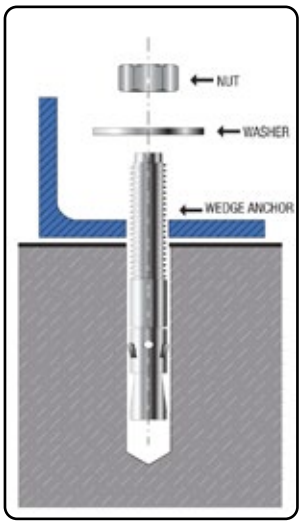
SIZE	HEX SIZE	MATERIAL	BONDED WASHER	SLEEVE	NUT INSERT	REC. HOLE SIZE	GRIP RANGE
10-32 x 1-1/4"	5/16	316 SS	304 SS/ EPDM	EPDM	BRASS	.375	.312-.545
10-32 x 1 3/4"	5/16	316 SS	304 SS/ EPDM	EPDM	BRASS	.375	.312-.545

ST® WedgeAnchor

- Wedge anchor is carbon steel with zinc plating.
- Applications include attaching base angle to concrete as well as other equipment subject to vibration or extreme movement.
- The hole diameter drilled with a carbide masonry bit is equal to the diameter of the anchor installed
- Expansion cone provides full 360 degree contact with the concrete, allowing maximum pull out strength.

SIZE	CASE QTY.	CARTON QTY.	WEIGHT/C
3/8 x 3”	50	200	10.8
3/8 x 3-3/4”	50	200	12.5
1/2 x 2-3/4”	25	100	19.0
1/2 x 3-3/4”	25	100	24.4
1/2 x 4-1/4”	25	100	26.0
5/8 x 4-1/2”	10	40	22.5
5/8 x 6”	10	40	59.0
3/4 x 5-1/2”	10	40	81.0
3/4 x 7”	10	40	99.0
3/4 x 10”	10	20	140.0

STEP 1	DRILL 	Accurately locate and drill a hole to the proper depth and recommended diameter of the anchor to be installed
STEP 2	CLEAN 	Use a extension and compressed air to blow the drill debris out of the hole drilled into the concrete
STEP 3	TIGHTEN 	Assemble the washer and nut to be flush with the top of the bolt, place through the assembly and into predrilled hole, driving it tight against the concrete. Tighten the nut to the required torque.

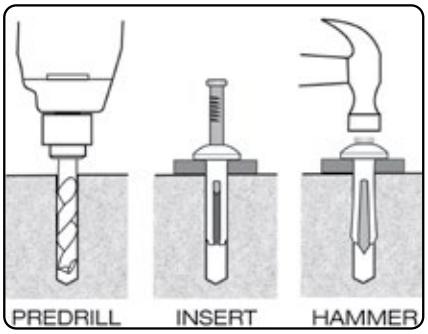


For more technical information go to www.stfastening.com

ST® NailAnchor

- Anchor is designed for light duty & tamper proof applications in masonry materials---brick, block, or stone.
- Body is manufactured in a high strength zinc aluminum---ZAMAC 3---alloy.
- Drive Nail is either carbon steel or 304 stainless steel.
- Applications include Roof Flashings, Electrical Fixtures, & Brick Ties & Furring Strips.

ANCHOR SIZE (IN.)	INDUSTRIAL PACK QUANTITY BOX/CARTON
1/4 x 1	100/1000
1/4 x 1-1/4	100/1000
1/4 x 1-1/2	100/800
1/4 x 2	100/800



SPECIFICATIONS, LISTINGS AND APPROVALS					
DIAMETERS	BODY MATERIAL	PIN MATERIAL	HEAD STYLE	FINISH	FEDERAL SPECIFICATIONS
1/4”	Die Cast ZAMAC 3 Alloy	Cold Rolled Steel	Mushroom	Zinc Plating ASTM B633	· GSA FFS-325, Group V, Type 2, Class 2

RoofjackRD™

- Manufactured from EPDM or silicone rubber, ROOFJACK RD™ is compounded for maximum resistance to ozone, UV light, & temperature extremes.
- Flexible aluminum base will allow the flashing to conform to any metal roof configuration. Pipe location can be centered in the flat of the panel or the rib. Urethane sealant & self-drilling screws complete the installation
- RoofjackRD are well marked so they can easily be cut with shears to fit exactly the pipe size used.
- RoofjackRD are available in Black or Gray EPDM as well as Red or Gray high temperature Silicone.

	EPDM 500	SILICONE
Advanced Ozone Resistance Tested to…	70 hr @500 pphm	70 hr @ 500 pphm
High Temperature Resistance Tested to Intermittent	+135°C (+275°F)	+260°C (+500°F)
Continuous	+100°C (+212°F)	+225°C (+500°F)
Low Temperature Resistance tested to…	-55°C (-65°F)	-74°C (-100°F)
Tensile Set Maximum…	10MPa (1450psi)	5MPa (700psi)
Compression Set Maximum…	25%	50%

High Temperature Silicone is Now Available in Gray

	PIPE SIZE	BASE DIAMETER	COLOR MATERIAL	CARTON QUANTITY	WEIGHT PER CARTON
#1	1/4" -2-1/2"	4.75" (120.7mm)	Black/Gray EPDM & Red/Gray Silicone	15	2.5
#2	1-3/4"-3"	6.21" (157.7mm)	Black/Gray EPDM & Red/Gray Silicone	15	4.5
#3	1/4"-5"	7.74" (196.6mm)	Black/Gray EPDM & Red/Gray Silicone	15	7.5
#4	3"-6-1/4"	9.26" (235.2mm)	Black/Gray EPDM & Red/Gray Silicone	10	8.0
#5	4-1/4"-7-3/4"	10.75" (273.0mm)	Black/Gray EPDM & Red/Gray Silicone	10	9.5
#6	5" - 9"	12.50" (317.5mm)	Black/Gray EPDM & Red/Gray Silicone	10	12.0
#7	6" - 11"	14.60" (370.8mm)	Black/Gray EPDM & Red/Gray Silicone	10	15.5
#8	7" - 13"	16.5" (419.1mm)	Black/Gray EPDM & Red/Gray Silicone	5	12.8
#9	9" - 19"	25.25" (641.1mm)	Black/Gray EPDM & Red/Gray Silicone	5	19.3

EASY INSTALLATION

1.Choose pipe opening and trim

2. Slide over pipe

3. Form to roof profile

4. Apply sealant

5. Fasten to complete

RoofjackSQ™

- Manufactured from EPDM or silicone rubber, RoofjackSQ™ is compounded for maximum resistance to ozone, UV light, & temperature extremes.
- Flexible aluminum base will allow the flashing to conform to any metal roof configuration. Pipe location can be centered in the flat of the panel or the rib. Urethane sealant & self-drilling screws complete the installation
- RoofjackSQ are well marked so they can easily be cut with shears to fit exactly the pipe size used.
- RoofjackSQ are available in Black or Gray EPDM & Red Silicone.
- RoofjackSQ can be turned so corner is pointing up the roof. It will act as a water diverter.

	EPDM 500	SILICONE
Advanced Ozone Resistance Tested to…	70 hr @500 pphm	70 hr @ 500 pphm
High Temperature Resistance Tested to Intermittent	+135°C (+275°F)	+260°C (+500°F)
Continuous	+100°C (+212°F)	+225°C (+500°F)
Low Temperature Resistance tested to…	-55°C (-65°F)	-74°C (-100°F)
Tensile Set Maximum…	10MPa (1450psi)	5MPa (700psi)
Compression Set Maximum…	25%	50%

	PIPE SIZE	BASE DIMENSION	COLOR MATERIAL	CARTON QUANTITY	WEIGHT PER CARTON
MINI	1/8"-3/4"	2 - 1/4" (57mm)	Black/Gray EPDM & Red Silicone	15	2.5
#1	1/4"-2-3/4"	4-1/2" (114mm)	Black/Gray EPDM & Red Silicone	15	2.5
#2	7/8"-4"	6" (152mm)	Black/Gray EPDM & Red Silicone	15	4.5
#3	1/4"-5-3/4"	8" (203mm)	Black/Gray EPDM & Red Silicone	15	7.5
#4	2-3/4"-7"	10" (254mm)	Black/Gray EPDM & Red Silicone	10	8.0
#5	4"-8-1/4"	11" (279mm)	Black/Gray EPDM & Red Silicone	10	9.5
#6	4-3/4"-10"	12" (304mm)	Black/Gray EPDM & Red Silicone	10	12.0
#7	5-1/2"-11-1/2"	14" (355mm)	Black/Gray EPDM & Red Silicone	10	15.5
#8	6-3/4"-13-1/2"	17" (431mm)	Black/Gray EPDM & Red Silicone	5	12.8
#9	9-1/2"-20-1/2"	25" (635mm)	Black/Gray EPDM & Red Silicone	5	19.3
MAXI	12"-28-1/2"	34" (863mm)	Black/Gray EPDM & Red Silicone	5	25.6

EASY INSTALLATION

1.Choose pipe opening and trim

2. Slide over pipe

3. Form to roof profile

4. Apply sealant

5. Fasten to complete

ARCHITECTURAL ROOFJACK AVAILABLE IN 8 COLORS

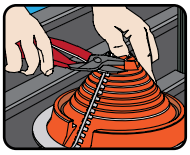
TERRA COTTA | LIGHT BLUE | BRIGHT RED | LIGHT GREEN | DARK GREEN | WHITE | BROWN | DARK BLUE

RETROFIT RoofjackRD™

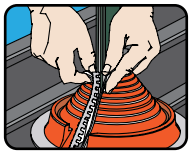
- Manufactured from EPDM or silicone rubber, Roofjack™ is compounded for maximum resistance to ozone, UV light, & temperature extremes.
- Flexible aluminum base will allow the flashing to conform to any metal roof configuration. Pipe location can be centered in the flat of the panel or the rib. Urethane sealant & self-drilling screws complete the installation
- RETROFIT Roofjack are well marked so they can easily be cut with shears to fit exactly the pipe size used.
- Stainless steel teeth grip the material & secure it tightly.

	EPDM 500	SILICONE
Advanced Ozone Resistance Tested to…	70 hr @500 pphm	70 hr @ 500 pphm
High Temperature Resistance Tested to Intermittent	+135°C (+275°F)	+260°C (+500°F)
Continuous	+100°C (+212°F)	+225°C (+500°F)
Low Temperature Resistance tested to…	-55°C (-65°F)	-74°C (-100°F)
Tensile Set Maximum…	10MPa (1450psi)	5MPa (700psi)
Compression Set Maximum…	25%	50%

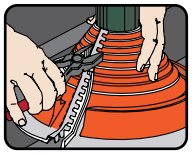
	PIPE SIZE	BASE DIAMETER	COLOR MATERIAL	CARTON QUANTITY	WEIGHT PER CARTON
#1	3/4”- 2-3/4” (19 - 70 mm)	6-3/10” (160mm)	Black EPDM/Grey EPDM/Red Silicone	5	2.5
#2	2”- 7-1/4” (50.8 - 184 mm)	10-3/4” (273.1mm)	Black EPDM/Grey EPDM/Red Silicone	5	8.0
#3	3-1/4” - 10”(95 - 254 mm)	14-1/2” (641.4mm)	Black EPDM/Grey EPDM/Red Silicone	5	15.5



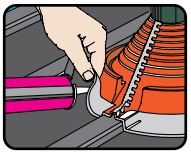
1. Using tin snips, cut the cone to fit pipe.



2. Wrap Retrofit around pipe, join the interlocking teeth

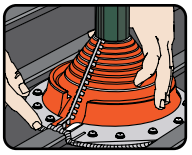


3. Squeeze joiner tightly with pliers to crimp



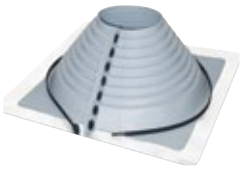
4.Apply sealant shape Retrofit to roof

5. Fasten Retrofit to roof



6. Apply additional sealant to mechanical locking joiner seam

RETROFIT RoofjackSQ™



- Manufactured from EPDM or silicone rubber, Roofjack™ is compounded for maximum resistance to ozone, UV light, & temperature extremes.
- Flexible aluminum base will allow the flashing to conform to any metal roof configuration. Pipe location can be centered in the flat of the panel or the rib. Urethane sealant & self-drilling screws complete the installation.
- RETROFIT Roofjack are well marked so they can easily be cut with shears to fit exactly the pipe size used.

- RETROFIT Roofjack are used in applications for which a standard flashing will not work. It wraps around the pipe instead of pulling down over the pipe. Hardware is included to ensure a watertight connection.
- Fastener snaps & cable tie are included.

	EPDM 500	SILICONE
Advanced Ozone Resistance Tested to…	70 hr @500 pphm	70 hr @ 500 pphm
High Temperature Resistance Tested to Intermittent	+135°C (+275°F)	+260°C (+500°F)
Continuous	+100°C (+212°F)	+225°C (+500°F)
Low Temperature Resistance tested to…	-55°C (-65°F)	-74°C (-100°F)
Tensile Set Maximum…	10MPa (1450psi)	5MPa (700psi)
Compression Set Maximum…	25%	50%

	PIPE SIZE	BASE DIMENSION	COLOR MATERIAL	CARTON QUANTITY	WEIGHT PER CARTON
#1	1/2” - 4” (12.7 - 101.6mm)	8” - 3/16” (80.96mm)	Black EPDM/Grey EPDM/Red Silicone	5	2.5
#2	4” - 9-1/4” (101.6 - 135mm)	14-1/4” (361.95mm)	Black EPDM/Grey EPDM/Red Silicone	5	8.0
#3	9-1/4” - 16-1/4”(235 - 412.8mm)	21-1/2” (546.1mm)	Black EPDM/Grey EPDM/Red Silicone	5	15.5

Red Silicone Retrofit Roofjack

1. Trim to Fit

2. Wrap and Snap

3. Press and Mold

4. Add Urethane Sealant.

5. Fasten

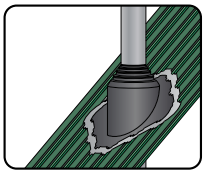
6. Install Cable Tie

EXTREME™ Roofjack™

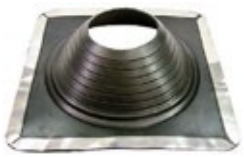
- Weather Resistance Designed to withstand the damaging effects of ultra violet light and ozone.
- Modification Made Simple Easy to see pipe diameters make for painless on-site customization.
- The built in 40° degree pitch allows to handle any extreme roof pitch (35° - 65°), sleeve flexibility accommodates vibration and pipe movement caused by expansion/ contraction. Easy on-site customization accommodates all normal installations.
- Adaptable Base. The base is designed to mold to most panel configurations and roof pitches regardless of pipe location.

	EPDM 500	SILICONE
Advanced Ozone Resistance Tested to…	70 hr @500 pphm	70 hr @ 500 pphm
High Temperature Resistance Tested to Intermittent	+135°C (+275°F)	+260°C (+500°F)
Continuous	+100°C (+212°F)	+225°C (+500°F)
Low Temperature Resistance tested to…	-55°C (-65°F)	-74°C (-100°F)
Tensile Set Maximum…	10MPa (1450psi)	5MPa (700psi)
Compression Set Maximum…	25%	50%

PIPE SIZE	BASE DIMENSION	COLOR MATERIAL	CARTON QUANTITY	WEIGHT PER CARTON
1/4” - 5-3/4” (6 - 146mm)	11” (279mm)	Black EPDM//Red Silicone	5	2.5



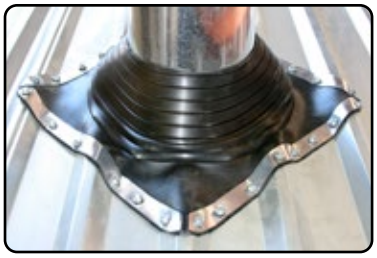
FIX-A-FLASH™ RoofjackSQ™



- Designed for an over-sized hole, but smaller diameter pipe, over which a standard ROOFJACK™ will not fit.
- Manufactured from EPDM or silicone rubber, the FIX-A-FLASH material compound is designed for maximum resistance to ozone, UV light, & temperature extremes.
- Each FIX-A-FLASH is well marked with pipe sizes, so it can be easily cut to properly conform to the pipe size used.
- FIX-A-FLASH have a flexible aluminum band that will conform to any metal roof configuration.

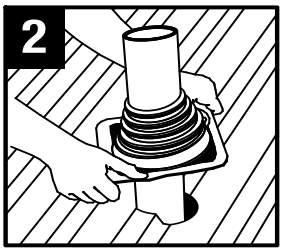
	EPDM 500	SILICONE
Advanced Ozone Resistance Tested to…	70 hr @500 pphm	70 hr @ 500 pphm
High Temperature Resistance Tested to Intermittent	+135°C (+275°F)	+260°C (+500°F)
Continuous	+100°C (+212°F)	+225°C (+500°F)
Low Temperature Resistance tested to…	-55°C (-65°F)	-74°C (-100°F)
Tensile Set Maximum…	10MPa (1450psi)	5MPa (700psi)
Compression Set Maximum…	25%	50%

PIPE SIZE	BASE DIAMETER	COLOR MATERIAL	CARTON QUANTITY	WEIGHT PER CARTON
Closed Top 0" - 15" (0-381mm	19-1/2" (495mm) Base	Black/Gray EPDM & Red Silicone	5	15
Open Top 6-3/4" - 15" (171-381mm)	19-1/2" (495mm) Base	Black/Gray EPDM & Red Silicone	5	15

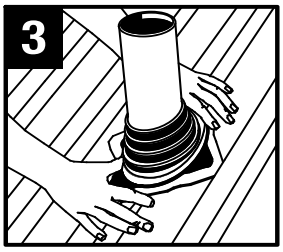


Easy Designed to Fix an Oversized Hole

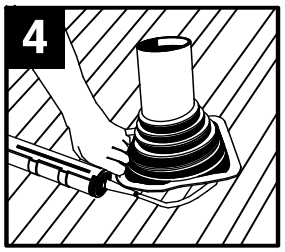
Choose Pipe Opening and Trim



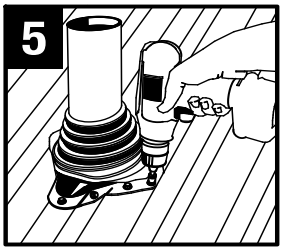
Slide Over Pipe



Form to Roof Profile



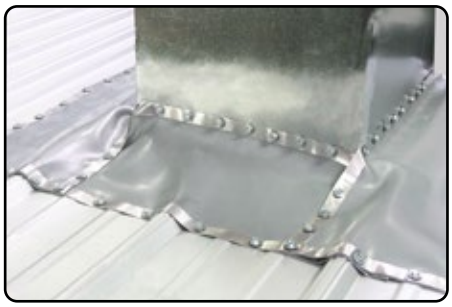
Apply Sealant



Fasten to Complete

EXPANSION JOINT™ Roofjack™

- LINEAR EXPANSION JOINT is manufactured from EPDM rubber to resist UV light, ozone, & temperature extremes.
- There are flexible aluminum bands integrated into each width of the material that conform to any metal roof panel configuration.
- Applications include transition walls, parapet walls, stepped roofs, square vents.

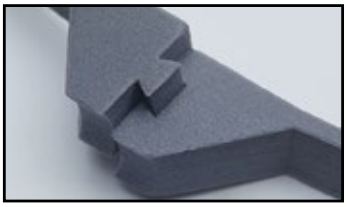


WIDTH	LENGTH	COLOR MATERIAL	WEIGHT PER CARTON
9" (228mm)	3ft (914mm)	Gray EPDM	1.8 LBS.
9" (228mm)	12ft (3.65meters)	Gray EPDM	5.18 LBS.
9" (228mm)	33ft (10meters)	Gray EPDM	13.37 LBS.
12" (305mm)	3ft (914mm)	Gray EPDM	2.28 LBS.
12" (305mm)	12ft (3.65meters)	Gray EPDM	6.10 LBS.
12" (305mm)	33ft (10meters)	Gray EPDM	15.02 LBS.

Easy Installation

ST ClosureStrip

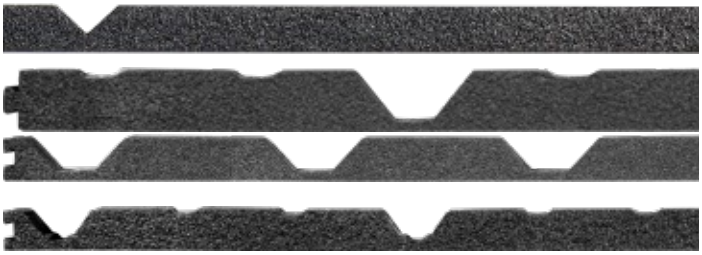
- Designed to close gaps in roof & sidewall applications. Material is pre-cut to conform to metal panel configurations.
- Applications include closing the openings at the ridge (peak of the building) or at the eave (gutter-line of a building).
- 1.8 lb. Density polyethylene foam is designed to withstand harsh weather elements including moisture & ultraviolet rays.
- Optional pre-applied adhesive helps to keep closure in place before roof panel is fastened.
- Interlocking dovetails provide a secure end-to-end fit, eliminating any potential gaps
- Other profiles are available. Call ST Fastening Systems Customer Service for availability.

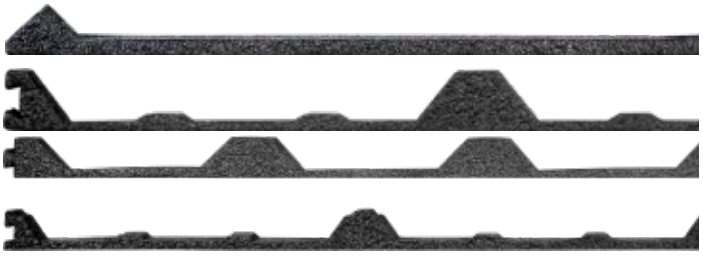


Interlocking dovetails provide a secure end-to-end fit, eliminating any potential gaps

PANEL PROFILE	DESCRIPTION	PITCH OF CORR	WIDTH OF STRIP	HEIGHT OF CORR	LENGTH OF STRIP	PIECES PER CTN.	WEIGHT PER CTN.
	3/4" Ag Rib	9"	7/8	3/4"	36"	100	6 LBS.
	R-Panel	12"	7/8	1-1/4"	36"	100	6 LBS.
	U-Panel	6"	7/8	3/4"	36"	100	6 LBS.
	Pro Panel II	9"	7/8	5/8"	36"	100	6 LBS.
	2.67" x 7/8" Corrugated	2.67"	7/8	7/8"	36"	100	6 LBS.

ADDITIONAL INSIDE AND OUTSIDES PROFILES ARE AVAILABLE





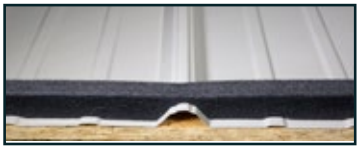
PHYSICAL PROPERTIES	TEST METHODS	REQUIREMENT
Density (lb./cf)	ASTM D 3574	1.8 - 2.0
110 mph Wind Driven Rain Test	AS 100(A)	NA
Air Permeability (ft3/m./ft2 of Surface)	ASTM D737	NA
Tear Resistance (lb./in. min.)	ASTM D 3574	6 machine direction
	ASTM D 3574	11 cross direction
Tensile Strength (lbs/in2 min.)	ASTM D 3574	60 machine direction
	ASTM D 3574	38 cross direction
Compress Force Deflection (lbs/in2 @ 25%)	ASTM D 3574	5
Compress Force Deflection (lbs/in2 @ 50%)	ASTM D 3574	15
Compression Set (% Original Thickness)	ASTM D 3574	24 - 28
Elongation (% min.)		124 machine direction
		88 Cross Direction
Shore Hardness (00 Scale)	ASTM 2240	51
Thermal Stability (% Max)	Machine Direction	-2.0
(24 hour @ 158oF)	Cross Direction	-1.0
Thermal Conductivity (K Factor)	ASTM C177	0.25
BTU in./F Hr oF		
Water Absorption (Lbs/SqFt Cut Surface)	ASTM D-1667	0.04
Working Temperature Range (Fo)		-40 to 160
Flammability	AVSS 302	Pass

EASY 4 STEP INSTALLATION

STEP 1 — PEEL PAPER FROM ADHESIVE

STEP 2 — FIT TO METAL PANEL

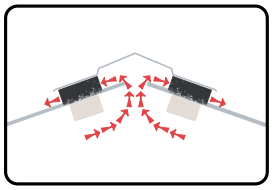
STEP 3 — FIRMLY APPLY



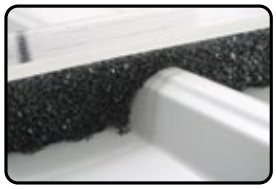
STEP 4 — LINK NEW CLOSURE

MULTIVENT™

- Adhesive is applied to the flat of the foam strip for easy field installation.
- Open cell foam formulated to allow as much as 98% free air flow.
- Material design prevents wind-driven rain from penetrating the material causing undesired leaks.
- Material design is universal in nature. It will conform to any panel 1 1/4" or less in height.
- MultiVent™ can be used on angled roof applications. There is no need for special angle cut closures



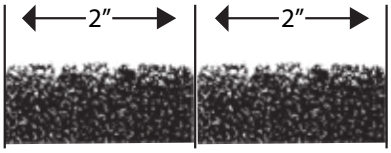
Easy peel and stick strips



Material conforms to any panel configuration.

LENGTH PER PIECE	PIECES PER CTN.	FEET PER CTN.	MULTI VENT DIMENSIONS	
			WIDTH	HEIGHT
36"	60	180	2"	1.75"

PHYSICAL PROPERTIES	NON-WOVEN POLYESTER	
	TEST METHODS	REQUIREMENT
Density (lb./cf)	ASTM D 3574	1.1 -- 1.6
110 mph Wind Driven Rain Test		not tested
Air Permeability (ft3/m./ft2 of Surface)	ASTM D737	700-800
Tear Resistance (lb./in. min.)	ASTM D 3574	2.9 minimum
Tensile Strength (lbs/in2 min.)	ASTM D 3574	12 minimum
Compress Force Deflection (lbs/in2 @ 50%)	ASTM D 3574	.5 - .65
Elongation (% min.)		90 minimum
Net Free Area		
Grandrib panel - 3/4" rib height (in2/lf of Ridge)	1 side	8.85
R panel - 1-1/4" rib height (in2/lf of Ridge)	1 side	14.76
Service Temperature Range		
High Intermittent (oF)		250
Continuous		200
Cold Temperature Resistance		-40
Melt Temperature		500



MultiVent10™ is packaged two strips side by side on release paper.

MULTIVENT CONTOUR

- 1 ½" wide material is manufactured from the same high quality material as MULTIVENT™.
- Material can be cut in a particular profile to match metal panel profile.
- Vented material will provide maximum air flow, yet prevent wind driven rain when compressed.
- Adhesive is applied as standard to allow for easy field installation.

NOTE: As with other attic ventilation systems, ST ContourVent must be installed with soffit or eave vents to meet HVI recommendations

AVAILABLE IN TWO PROFILES

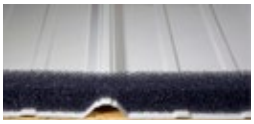
1 ¼" R-PANEL

3/4" AG RIB

	PIECES PER CTN.	FEET PER CTN.	ST CONTOURVENT DIMENSIONS	
			WIDTH	HEIGHT OF PROFILE
R-Panel	40	120	1 1/2"	1 1/4"
AG RIB	60	180	1 1/2"	3/4"

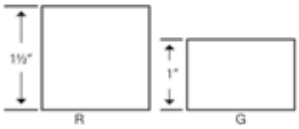
PHYSICAL PROPERTIES	TEST METHODS	REQUIREMENT
Density (lb./cf)	ASTM D 3574	1.1 -- 1.6
110 mph Wind Driven Rain Test		not tested
Air Permeability (ft3/m./ft2 of Surface)	ASTM D737	700-800
Tear Resistance (lb./in. min.)	ASTM D 3574	2.9 minimum
Tensile Strength (lbs/in2 min.)	ASTM D 3574	12 minimum
Compress Force Deflection (lbs/in2 @ 25%)	ASTM D 3574	.5 - .65
Elongation (% min.)	ASTM D 3574	90 minium
Net Free Area		
Grandrib panel - 3/4" rib height (in2/lf of Ridge)	1 side	8.85
R panel - 1-1/4" rib height (in2/lf of Ridge)	1 side	14.76
Service Temperature Range		
High Intermittent (oF)		250
Continuous		200
Cold Temperature Resistance		-40
Melt Temperature		500

EASY INSTALLATION

STEP 1	PEEL PAPER FROM ADHESIVE 
STEP 2	FIT TO METAL PANEL 
STEP 3	FIRMLY APPLY 

MULTIVENT10™ / MULTIVENT20™

MultiVent10™



- Specially formulated coated polyester has been manufactured from recycled material and is recyclable.
- Won't absorb moisture, which can freeze and block all ventilation.
- Unique doubled beaded adhesive for a durable holding strength
- Available in 10' and 20' rolls

PROUDLY MADE IN THE USA

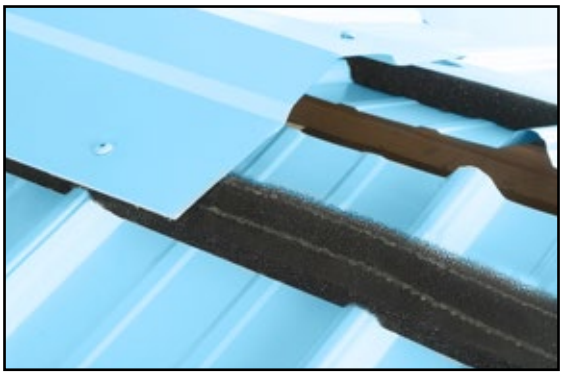
ST GREEN

Available in Two Sizes

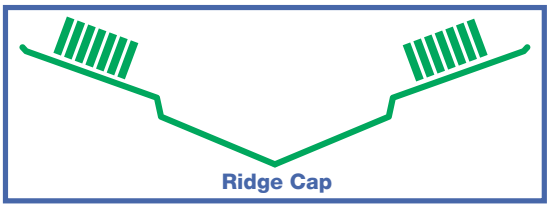
	LENGTH PER PIECE	PIECES PER PACKAGING	FEET PER PACKAGING	MULTI VENT DIMENSIONS	
				WIDTH.	HEIGHT
MultiVent10 R	10'	2	20	2"	1 1/2"
MultiVent10 G	10'	2	20	2"	1 "
MultiVent20 R	20'	1	20	2"	1 1/2"
MultiVent20 G	20'	1	20	2"	1 "

PHYSICAL PROPERTIES	NON-WOVEN POLYESTER	
	TEST METHODS	REQUIREMENT
Density (lb./cf)	ASTM D 3574	0.9
110 mph Wind Driven Rain Test	AS 100(A)	pass
Air Permeability (ft3/m./ft2 of Surface)	ASTM D737	1329
Tear Resistance (lb./in. min.)	ASTM D 3574	4.5
Tensile Strength (lbs/in2 min.)	ASTM D 3574	19 minimum
Compress Force Deflection (lbs/in2 @ 50%)	ASTM D 3574	.52
Elongation (% min.)		
Net Free Area		
Grandrib panel - 3/4" rib height (in2/lf of Ridge)	1 side	9.5
R panel - 1-1/4" rib height (in2/lf of Ridge)	1 side	13.23
Service Temperature Range		
High Intermittent (oF)		250
Continuous		200
Cold Temperature Resistance		-40
Melt Temperature		500

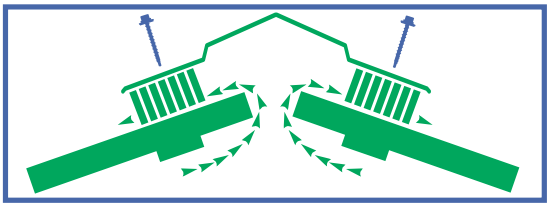
THERMAL	NOMINAL VALUE UNIT	TEST METHOD
Vicat Softening Temperature	235 to 428°F	ASTM D1525
	325 to 428°F	ISO 306



MultiVent10 with a pre-applied adhesive strip is easily applied to the underside of a metal ridge cap for easy field installation



Clean panel of dust & debris. The versatility of the MULTIVENT20 allows installation either onto the ridge cap or the metal roof panel. The roll should sit "up-slope" from the edge of the ridge cap. Double bead adhesive holds MULTIVENT20 securely in place.



Install ridge cap to metal roof panel with electric screw gun with depth setting nosepiece or drill driver with clutch to prevent over-driving.

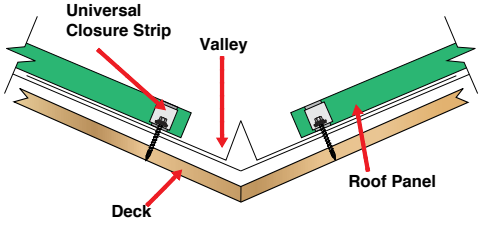
ST PolyUrethane Strip

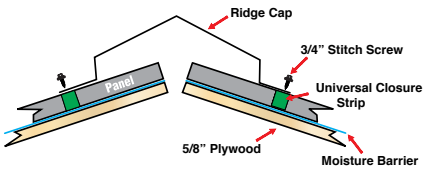
- Polyurethane foam strip is also referred to as Universal Closures.
- The material is a flexible semi-closed cell material that is used for filling voids & other openings between metal panels.
- They are available with or without pre-applied adhesive.
- Standard length is 25'.

THICKNESS	WIDTH	LENGTH	ROLLS/BUNDLE
1"	1"	25 FT.	10/BOX
1"	1-1/2"	25 FT.	10/BOX
1-1/2"	1-1/2"	25 FT.	10/BOX
2"	2"	25 FT.	8/BOX

** Special Order non taped.
* UNIVERSAL CLOSURES available in all sizes without adhesive. There are 20 rolls per package. Call for current price & availability.

EASY INSTALLATION





STEP 1 — FIT TO METAL PANEL

STEP 2 — FIRMLY APPLY

NOVAFLEX SILICONE
When You Want The Seal to Last

PROUDLY MADE IN THE USA

100 Series MRS

- Permanently flexible, invisible to UV light, and mold/mildew resistant
- Waterproof, weather tight seal that will not freeze, shrink, crack, sag, or slump. Plastic tubes will not fall apart, crack or split open.
- Excellent adhesion to most building substrates, excellent tooling, and easily gunned at all temperatures— winter and summer. Tack free in 10 minutes, and completely cured within 48 hours.
- 18 month shelf life, solvent free, low odor, and VOC compliant in all 50 states (green building compliance).
- Available in all major siding, trim, coil, window and metal roof manufacturer colors. AAMA verified for all window installations, and it can be used on interior and exterior surfaces/ applications
- Ability to use entire tube—or can save with end cap—no waste, removable tips.
- 100 Series Silicone has excellent adhesion to most non-porous substrates such as poly carbonate, glass, aluminum, ceramic tile, fiberglass and glazed brick.

DESCRIPTION	CARTON QTY..	CARTON WEIGHT
MRS (Metal Roof Sealant) Silicone	Qty. 12	10 lbs.
100 Series Silicone for Polycarbonate and Fiberglass	Qty. 24	20 lbs.

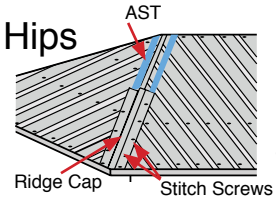
PRODUCT SPECIFICATIONS				
PHYSICAL PROPERTY	TEST METHOD		PERFORMANCE RANGE	
	100 SERIES	MRS	100 SERIES	MRS
APPEARANCE			TRANSLUCENT PASTE	COLORED PASTE*
EXTRUSION RATE		1/8" ORIFICE @ 50PSI		30 – 80 GRAMS
SKIN OVER TIME	3/8" @ 50%RH & 77·F	3/8" @ 50%RH & 77·F	25 MINUTES MAX	5-10 MINUTES
THROUGH CURE	3/8" @ 50%RH & 77·F	3/8" @ 50%RH & 77·F	7 DAYS	24 HOURS

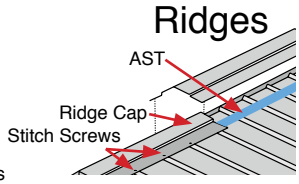
PRODUCT SPECIFICATIONS				
PHYSICAL PROPERTY	TEST METHOD		TYPICAL VALUE	
	100 SERIES	MRS	100 SERIES	MRS
Specific Gravity			1.03	1.00 -1.25
Tensile Strength	ASTM D412	ASTM D412	200 PSI	140-200 PSI
Elongation	ASTM D412	ASTM D412	600%	500-650%
Tear Resistance	ASTM D624	ASTM D624	28	30-35 PLI
Shore Hardness	ASTM D 2240	ASTM D 2240	18	22 ± 8
Service Temperature			-62 to 200°C	-40C – 205C (-40F –400F)
Join Sealant Designation		ASTM C920		Type S Grade NS Class 25 Use NT, M, G, A,O
Adhesion Glass Aluminum Vinyl		ASTM D 903		 12-15 pli 10-14 pli 12–15 pli

EMSEAL® AST ACRYLIC SEALANT TAPE

- AST is a self-adhering foam tape impregnated with water-based acrylic-modified asphalt emulsion.
- It is an excellent alternative to butyl tape & open-cell polyurethane foam strips.
- Will not dry out and become hard and brittle
- UV-stable
- Highly resistant to bugs and vermin
- Will not extrude from between joints like caulk or butyl tapes
- Conforms to contours and fills gaps
- Maintains a seal during thermal expansion and contraction of building panels
- Excellent compressibility and recovery (minimal compression set)
- Good thermal and sound insulator
- No shrinkage or blow-out due to closed-cell breakage
- Supplied with self-adhesive on one side. After removal of packaging, material begins gradual expansion - more slowly in cold weather than in hot.

SUPPLIED SIZE	EXPANDED SIZE	LF/BOX	REELS PER BOX	REEL LENGTH
1/4" x 1"	1" x 1"	511.68 LF	26	19.7'
3/8" x 1"	1-1/2" x 1"	314.88 LF	24	13.1'





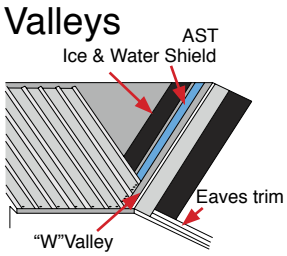


TABLE 1: TYPICAL PHYSICAL PROPERTIES OF AST		
PROPERTY	VALUE	TEST METHOD
BASE MATERIAL	OPEN CALL, HIGH DENSITY, POLYURETHANE FOAM	N/A
IMPREGNATION	ACRYLIC-MODIFIED ASPHALT	N/A
COLOR	BLACK	N/A
TENSILE STRENGTH	21 PSI MIN (145 KPA)	ASTM D3574
ELONGATION - ULTIMATE	3/8" X 3/8"	ASTM D3574
TEMPERATURE RANGE HIGH-PERMANENT HIGH-SHORT TERM LOW	 185°F (85°C) 203°F (95°C) -40°F (-40°C)	ASTM C711
SOFTENING POINT	140°F MIN (60°C)	ASTM D816
UV RESISTANCE	EXCELLENT	
MILDEW RESISTANCE	EXCELLENT	
RESISTANCE TO AGING	EXCELLENT	
BLEEDING -40°F TO 180°F (-40°F TO 85°F)	NONE (WHEN COMPRESSED DOWN TO 20 % OF UNCOMPRESSED THICKNESS)	
COMPRESSION SET 70°C 50% RH AFTER 72HRS	3 % MAX	ASTM D3574
THERMAL CONDUCTIVITY	0.34 BTU. IN/HR. FT2.°F (0.05 W/M. °C)	ASTM C518
LOW. TEMP. FLEXIBILITY 32°F TO -10°F (0°C TO -23°C)	NO CRACKING OR SPLITTING	ASTM C711
WATER VAPOR TRANSMISSION	0.011 PERMS	ASTM C355-64

TackyTape®

PROUDLY MADE IN THE USA

- TACKY TAPE is a 100% solids, asbestos free butyl tape sealant in roll form.
- Applications include metal roof endlaps, sidelaps, vents, gutters, pipe flashings, skylights.
- Service temperature range is -40 Degrees F- +180 Degrees F
- Material will not become brittle or crack.

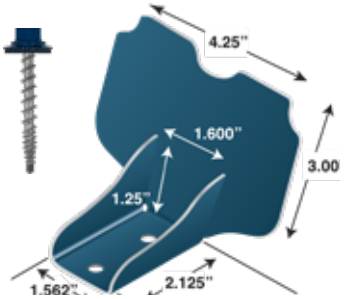
TACKY TAPE ROLL	CARTON QTY.
3/32" x 3/8" x 45'	40
3/32" x 1/2" x 45'	32
3/32" x 3/4" x 45'	24
3/32" x 1" x 45'	20

SnowTrax™

Snowtrax in 28 environment friendly powder coat colors. The color GY17 is no longer available.

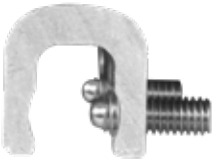
- Material is 16 gauge 304 Stainless Steel
- Snowtrax™ are packaged 50 pieces per box
- No additional sealant is required, which saves cost & maintains a finished appearance.
- Snowtrax can be added to fastener orders to save freight costs.
- Powder coat paint is standard on all Snowtrax in 28 colors as well as unpainted.
- Snow Trax design is best suited for exposed fastener metal to wood roof applications.
- EPDM rubber gasket provides maximum sealing capability when installed with Kwikseal MB Woodbinder® screws.
- Powder coat colors will be consistent from job to job with no color drift.

EASY INSTALLATION



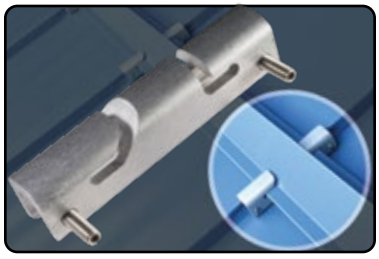
MRC SnowTrax™

The Extruded Aluminum alloy clamp is machined with pre-drilled holes. 26 gauge colored rail is formed to slide through the grooves in the clamp.

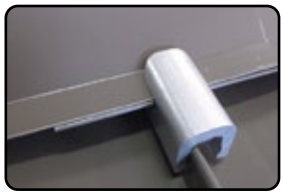


304 Stainless Steel coned set screws are provided to secure the clamp to the standing seam roof panel.

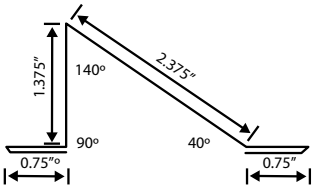
- Designed for residential standing seam metal roofs
- Made in USA
- Colored rail bent out of customer inventory
- Freight savings
- Efficient inventory management
- Product testing independently verified
- 25 Year Warranty



APPLICATIONS



The MRC SNOW TRAX is shown installed with the colored rail.



The schematic drawing below illustrates the dimensions to fabricate the rail from the same material as the roof.

TABLE 1 - TEST RESULTS FOR MRC SNOW TRAX	
Ultimate Axial Load Capacity - 26 gauge steel roof panel	913 lbf [S.D. 46.6 lbf]
Ultimate Axial Load Capacity - 24 gauge steel roof panel	843 lbf [S.D. 67.4 lbf]
Ultimate Axial Load Capacity - All Samples	878 lbf [S.D. 64.7 lbf]

ST Driver

- Maximum torque transfer & positive tool engagement means easier drive installation with less pressure & slippage.
- Drivers are specifically designed to fit ECLIPSE® WOODBINDER® & STEELBINDER® screws.

SIZE	TYPE	LENGTH
T25W275	6 LOBE	2-3/4"
T30W275	6 LOBE	2-3/4"
275-SQP2	SQUARE/PHILLIPS Combo	2-3/4"

ST Socket

- 1/4", 5/16", 3/8" sizes are standard.
- Magnetic or Spring Retainer are both available
- Magnetic socket is designed with a high power magnet for a secure fit. Painted fasteners do not scratch or mar as easily
- Spring retainer socket is designed for use with all ST Fastening Systems non-magnetic screws, especially the ZXL long-life family. The clip & ball bearing hold the screw securely in place during installation.

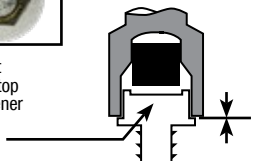
ST Magnetic Socket is available for powder coated fasteners

SIZE	TYPE	LENGTH
1/4"	Magnetic, Spring Retainer	2-9/16", 1-3/4"
5/16"	Magnetic, Spring Retainer	2-9/16", 1-3/4"
3/8"	Magnetic, Spring Retainer	2-9/16", 1-3/4"

NOTES: 1. A 1 3/4" short magnetic socket is also available.

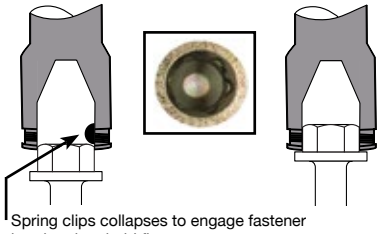
Magnet Clears top of fastener head

CORRECT



No space… socket bears on hex washer face

Magnet set to correct depth



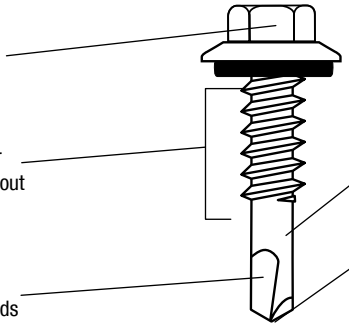
Spring clips collapses to engage fastener head and to hold firm

MAXX™ STEELBINDER® FASTENER FEATURES

HEAD
Proper head style choice will ensure stability during driving, proper clamping and desire finished appearance.

THREAD FORM AND DIAMETER
The correct choice of thread form and diameter optimizes low installation torque with high pull out strength.

FLUTE
Flute ejects material removed by the drill point & must clear all material before threads begin to engage.



PILOT SECTION
The unthreaded portion of the point assures that drilling of the steel is completed before the threads begin tapping into the drilled hole.

POINT
The point is designed to begin the cutting process & precisely size the hole to the proper diameter of the thread.

FINISH
Plating & coatings provide lubricity during drilling and tapping as well as corrosion resistance

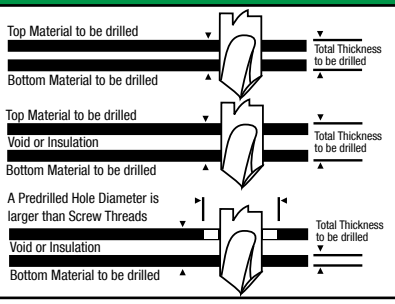
*** Drill capabilities may vary with special flute length**

MAXX STEELBINDER® DRILLING TECHNIQUE

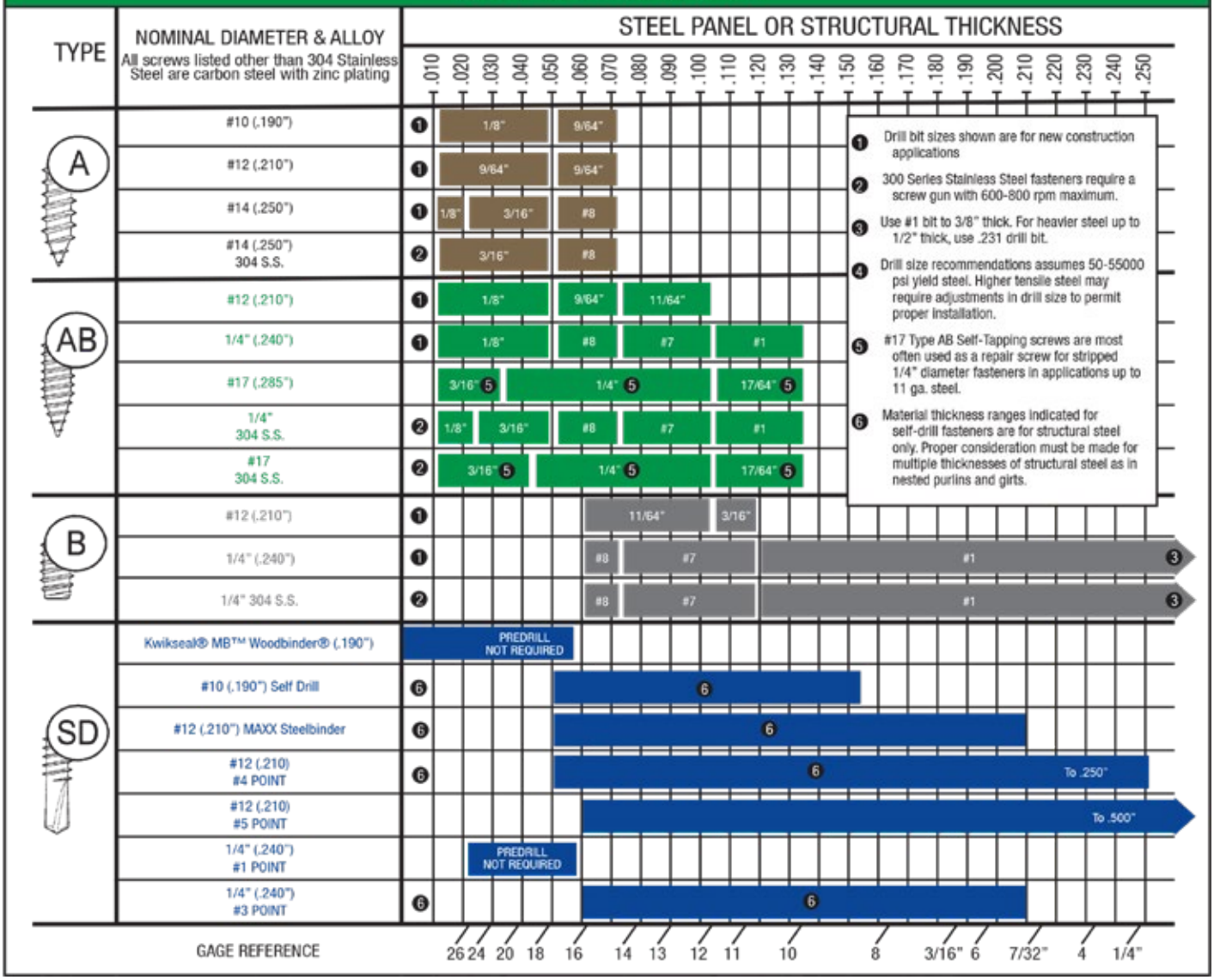
ST Fastening Systems Maxx Steelbinder… DRILLS, TAPS AND FASTENS IN ONE OPERATION.
A separate drilling operation is not necessary. However, specific installation procedures are necessary to ensure correct fastening results and to achieve published performance values for each fastener.

Important: A 1900 to 2500 RPM screwgun rated at 6 amps or higher, equipped with a properly adjusted depth-sensing nosepiece should be used to ensure proper fastening performance. During initial drilling, enough pressure must be applied while keeping the screwgun and fastener perpendicular to the work surface to prevent angle driving or walking. **The flute length must be long enough to ensure that drilling is completed before any threads engage the material. This includes all voids & insulation thickness.** It is essential to choose the correct fastener based upon the total thickness and type of material to be drilled and fastened for an application. Never overdrive the fasteners or install fasteners at an angle to the work surface as this may significantly reduce product performance or lead to failure.

Contact ST Fastening Systems Technical Services at 1-800-352-4864 for any specific information necessary.



FASTENER SELECTION GUIDE



1. Select the proper screw gun for installing self drilling fasteners.

No**

IMPACT DRIVER

BATTERY

OR

ELECTRIC

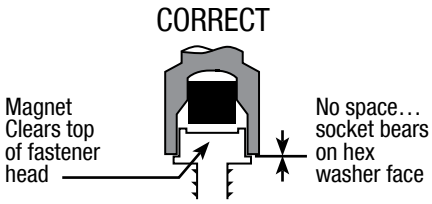
RECOMMENDED SCREW GUNS* W/ DEPTH SENSING NOSE PIECE.

	MAXX™ STEELBINDER®			HWH STEELBINDER® & KWIKSEAL® MB™ WOODBINDER®		
MANUFACTURER	MODEL	AMPERAGE	RPMS	MODEL	AMPERAGE	RPMS
MILWAUKEE	6790-20	6.5	0-2500	6790-20	6.5	0-2500
DEWALT	DW266	6.5	0-2500	DW266	6.5	0-2500
DEWALT	DCD780	N/A	0-2000	DCD780	N/A	0-2000
BOSCH	SG25MT	7.0	0-2500	SG25MT	7.0	0-2500

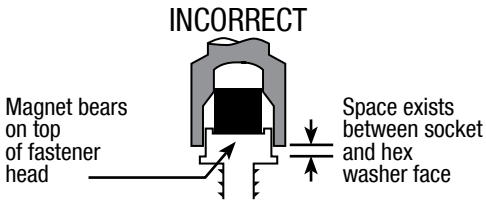
* For use in installing all self-drilling fasteners from #6 through #1/4 diameters. Tool speed as high as 2500 RPM can be used for #6 through #10 diameters in softer materials. Do not use 4000 RPM drywall guns.

**FOR PROPER APPLICATION, THE USE OF IMPACT DRIVERS ARE NOT RECOMMENDED ON ANY POWDER COATED OR PAINTED FASTENER.

2. Set the magnet in the driving socket to the proper depth. Socket must bear securely on the hex washer face of the fastener.

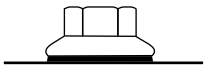
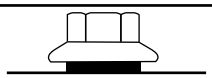
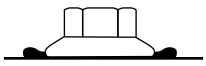
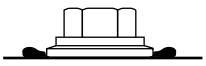


Magnet set to correct depth

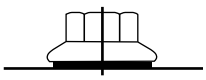
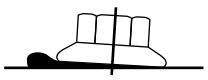
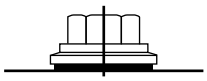
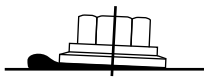


Magnet set too shallow

3. Use depth sensing nosepiece on screw gun to allow proper seating of fastener. Do not overdrive. (See illustration)

	MAXX STEELBINDER	HWH STEELBINDER & KWIKSEAL MB WOODBINDER
CORRECT Sealing material slightly visible at edge of metal washer. Assembly is weather tight.		
UNDERDRIVEN Sealing material not compressed, Assembly loose.		
OVERDRIVEN Sealing material extruded beyond edge of washer. Washer deformed.		

4. Drive fastener perpendicular to surface.

MAXX STEELBINDER		HWH STEELBINDER & KWIKSEAL MB WOODBINDER	
CORRECT	INCORRECT	CORRECT	INCORRECT
			

5. Select extension cords with the correct wire size. See table below.

RECOMMENDED MINIMUM WIRE GAUGE* FOR EXTENSION CORDS

RATED AMPERES (TOOLS)	EXTENSION CORD LENGTH					
	25'	50'	75'	100'	150'	200'
Through 5	16	16	16	16	12	12
5.1 - 8.0	16	16	16	16	10	-
8.1 - 12.0	14	14	14	10	-	-
12.1 - 15.0	12	12	10	10	-	-

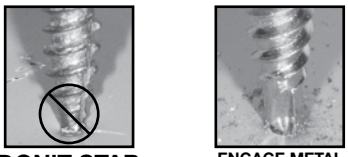
* Tool manufacturer's recommended size based upon limiting the line voltage drop to five volts at 150% of the rated amperes.

6. Do not force the fasteners. Apply only enough end pressure to allow drill point to cut efficiently.

PROPER TECHNIQUE IS KEY

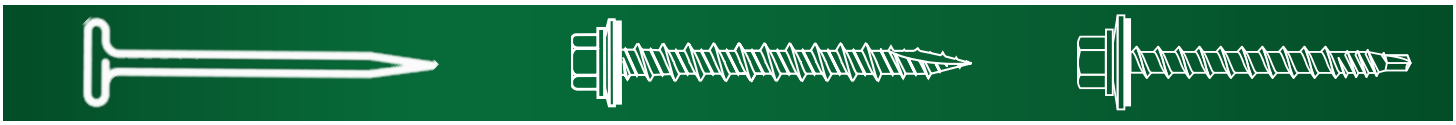
Whether using a pierce-point or self-drilling fastener, proper techniques must be followed for efficient installation and optimum fastener function. Punching or stabbing fasteners though the metal panel is not proper technique! Nails are meant to be driven. Fasteners are designed to be set without impact.

Deviation from proper technique will adversely affect the fastener's corrosion resistance, its ability to seal, and structural engineering values such as shear strength, pull-out and pull-over. Improper installation technique negates any applicable warranties.

STEP 1	**USE CORRECT TOOLS**  SOCKET BATTERY OR ELECTRIC	• The proper tool for installing self-piercing or self-drilling metal-to-wood fasteners is a corded electric screw gun or cordless battery drill, each 0-2000 RPM. They should be fitted with a depth sensing nose cone or a torque release clutch. A hex magnetic socket driver should be used that is clean of all metal shavings. A spring retainer socket may be used for non-magnetic fasteners. • **The use of an impact drill driver is strongly discouraged. The use of these drivers will damage the protective barrier coat paint system. They will invalidate published structural values due to the excessive torque applied. They can adversely affect the sealing performance of the washer & damage the metal panel.**
STEP 2	**SET PLACE DRILL** 	• Proper installation technique is important to maximize the micro-bit performance. Place the point of the fastener on the work surface & pull the trigger on the drill or screw gun. By slowly increasing the RPM, the drill point will begin the cutting process. This will eliminate any potential for screws "walking" on a panel & provide 100% installation success.
STEP 3	**LET THE DRILL DO THE WORK**  DON'T STAB ENGAGE METAL WITH MICRO-BIT	APPLY EVEN PRESSURE • At no time, should an installer try to use the fastener as a "punch" to start the drilling process. This will cause the fastener to "walk" on the metal, possibly scratching the metal panel, or flipping out of the drill driver completely. • The trigger should not be taped in the "on" position, as this may cause the fastener to rotate before it has been placed on the work surface. • Let the drill point do the work. It will consistently cut the metal, ejecting small shavings, not long metal "pigtails" as with sharp point screws.
STEP 4	**SEAT WASHER PROPERLY**  CORRECT OVERDRIVEN UNDERDRIVEN	VISUAL INSPECTION • To prevent damage to the wood substrate, causing potential strip out of the fastener, the washer should be compressed, but not overdriven. It should be rounded evenly under the flange of the HWH. Driving the fastener perpendicular to the work service will allow this to happen. If the washer is overly flat, misshapen, or cut indicates the fastener has been over driven. If there is a gap between the washer & the flange of the HWH, this indicates an under driving condition.

EVOLUTION OF FASTENERS FOR WOOD FRAME CONSTRUCTION

In the early 1900's, "pole barns" became popular in the United States. The name arose from the use of telephone poles as the primary structural member. They were less expensive than conventional construction methods at the time, & they could be erected quickly. Corrugated steel, developed in the 1800's, quickly became the cladding of choice for pole barns.



NAILS

Initially, the panels were attached to the wood substructure with nails. These nails were fitted with a lead washer. The nails were driven into the apex of the high rib of the corrugation because the lead washer did not provide good sealing qualities. The nails, being hammered into the panels were unsightly and difficult to install. Nails were eventually replaced by self-piercing fasteners.

THE MB MICRO-BIT POINT MAY GENERATE SMALL METAL SHAVINGS UPON INSTALLATION. IT IS RECOMMENDED TO CLEAN/ SWEEP THE METAL PANELS AFTER INSTALLATION TO PREVENT PREMATURE RUST SPECKS.

SELF PIERCING FASTENERS

• Self-piercing fasteners are designed with a sharp point. The screw rotation helps the sharp point pierce the metal, allowing the threads to engage the metal panel & the wood.

• A rubber & metal washer combination will create a tight seal around the hole created. This allows the fastener to be installed in the flat of the metal panel instead of the high rib, creating a stronger connection.

• Fasteners do not require an impact to the head to be installed, unlike nails. This protects the paint finishes & corrosion resistant coatings on the metal panels & fasteners.

• Fasteners are installed with an electric screw gun or battery drill. They can be painted to match any panel color creating a more aesthetic appearance. These panels have evolved with high quality paint systems & finishes, & are no longer only used on pole barns.

• The primary complaint about self-piercing fasteners is the inconsistency of the drilling process. The points may not penetrate the steel panel quickly. This leads to a slow drill or no drill situation. The introduction of the WOODBINDER® Micro-Bit point resolves this issue.

SELF-DRILLING FASTENERS (NEW TECHNOLOGY)

• The Kwikseal® MB™ Woodbinder® combines metal to metal fastener point technology with ST Fastening Systems' unique deep crested thread design for maximum holding strength in all wood substrates.

• The Micro-Bit point acts as a drill bit, consistently drilling single or multiple thicknesses of high strength steel panels. It requires less end pressure to penetrate the metal & engage the wood.

• The Micro-Bit will eliminate the metal "pigtails" commonly formed by self-piercing screws, which can embed themselves in the rubber washer, tearing the rubber. These can cause premature corrosion or a roof leak.

• The Micro-Bit creates small metal shavings that are ejected away from the fastener hole, which can easily be swept off the roof each day.

AVAILABILITY: Fasteners shown in this product catalog are standard in our product line. Many related nonstandard items not shown here are available and will be priced upon request.

PRICES: Prices and conditions of sale are subject to change without notice.

STANDARD TERMS OF PAYMENT: Net 30 Days (Based Upon Credit Approval)

FREIGHT TERMS: F.O.B. shipping point.
1. Freight is prepaid on orders of $2000.00 or more of threaded fasteners. Also included in this group are Roofjacks, Rivets, Butyl Tape, Grommets, Structural Hardware.
2. Freight is prepaid on orders of $3000.00 or more that are predominantly Closure Strips and Closure related items.

STANDARD PACKAGING: All STEELBINDER & KWIKSEAL WOODBINDER screws are packaged in 250 piece polyethylene bags.
1. Specialty fasteners are packaged in bulk boxes.
2. Orders for less than box quantity will be subject to a 10% surcharge.
3. Orders for less than a 250 piece bag quantity will be subject to a 25% surcharge.

DROP SHIPMENTS: All drop shipments are prepaid and added to the invoice.

WARRANTY AND LIMITATIONS OF LIABILITY: All warranties of ST Fastening Systems, expressed or implied, including the warranties of merchantability and fitness for particular purposes are specifically excluded except for the following: ST Fastening Systems will replace any product which, within 120 days after sale by ST Fastening Systems, is found by ST Fastening Systems to be defective in material or workmanship. This is the sole warranty of ST Fastening Systems and the sole remedy available to buyers.

$50.00 MINIMUM ORDER

RETURN GOODS POLICY: A Return Authorization number (RA) must be issued by ST Fastening Systems before any product will be accepted for return. Returns without this number will be refused by ST Fastening Systems receiving department. Product must be current standard product and in a reusable condition. Returned goods will be subject to a 20% restocking charge and must be returned freight prepaid.

*Any special product produced specifically for a customers requirement and is not listed in our product catalog will only be accepted for return if at ST Fastening Systems discretion a resale market exists.

This catalog may contain errors and omissions relating to product description, technical specifications and availability. We reserve the right to correct errors or omissions without prior notice. We also reserve the right to cancel any offered product or service in the event of an error or omission in the description, unavailability or other reason.

Fastening Systems
A Division of The Hillman Group

www.stfasteningsystems.com

6357 Reynolds Rd., Tyler, Texas 75708
Mailing Address: P.O. Box 4515, Tyler, Texas 75712
800-352-4864 • 800-352-3940 Fax
903-592-2826 • 903-592-1583 Fax

9950 Princeton Glendale Rd.
Cincinnati, OH 45246
800-944-8920 • 800-944-4183 Fax
513-874-5905 • 513-874-5903 Fax